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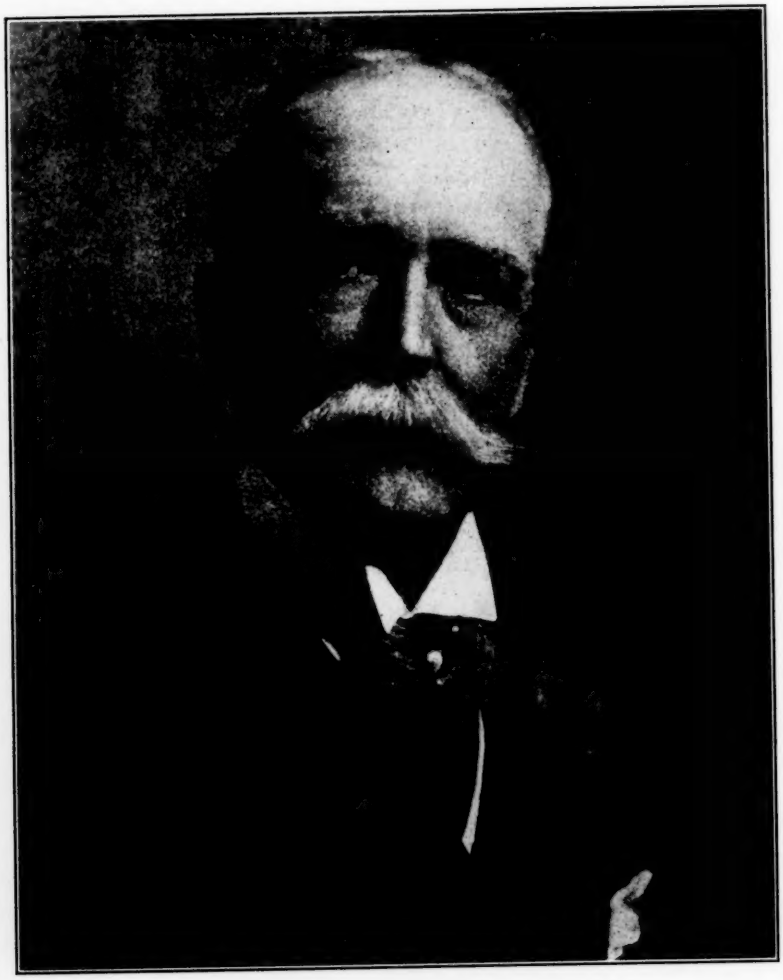
Founder of a Pharmaceutical Scholarship in the United States entrusted to the American Pharmaceutical Association, National Association of Boards of Pharmacy, and American Conference of Pharmaceutical Faculties.



SAMUEL W. FAIRCHILD

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

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SAMUEL W. FAIRCHILD, PH.M., M.Sc.

Samuel W. Fairchild, of New York, is one of the most prominent and interesting figures in American pharmacy. He is a man of most attractive personality, handsome, distinguished, suave, courteous, and polished; he has hosts of friends and admirers. The dinner given to him by the members of the Union League Club on the occasion of his reëlection to the presidency some years ago brought together one of the most distinguished companies ever assembled to do honor to a private citizen.

Beginning life as a clerk in a retail drug store, he has amassed a fortune and has won for himself a high place in the social, scientific, and financial world. Under his presidency the New York College of Pharmacy left the old building on Twenty-third Street and erected a handsome structure on Sixty-eighth Street at a cost of $125,000, entering upon a new era of prosperity. Mr. Fairchild was reëlected president of the Union League Club of New York three times, a most unusual honor to be bestowed by that select and distinguished club upon any president. He founded the Fairchild pharmaceutical scholarship in Great Britain and Ireland in 1904, and at the San Francisco meeting of the American Pharmaceutical Association last year announced the foundation of a scholarship in the United States to the value of $300 annually. Mr. Fairchild is a veteran of the Seventh Regiment of the National Guard of the State of New York, a member of the Sons of the Revolution, of the Pilgrims, of the New England Society of New York, of the Metropolitan Museum of Art, of many benevolent societies, and is connected with many banks and financial institutions in an executive and financial capacity. He was one of the incorporators of the Bronx Botanical Gardens, and has served on many committees and commissions appointed by the city authorities to aid in planning celebrations on special occasions. He was one of the commissioners from New York at the Columbian Exposition in Chicago in 1893, and is a member of many clubs and societies in Europe, as well as in the United States. He received the honorary degree of Master of Pharmacy from the Philadelphia College of Pharmacy in 1908 and of Master of Science from Columbia University in 1911.

Mr. Fairchild is married and has three daughters and two sons, one of whom, Mr. Benjamin Tappen Fairchild, a graduate of Yale University, is associated with him in business.

CASWELL A. MAYO.

EDITORIAL

E. G. EBERLE, Editor 253 Bourse Bldg., PHILADELPHIA

THE GRADUATES OF PHARMACY.

DURING the last few weeks, perhaps a thousand or more graduates in pharmacy have been given their certificates of proficiency from the schools which they attended during the past two years or more. Next, the boards of pharmacy will pass on the fitness of these candidates for pharmaceutical practice, and then they accept positions in stores or go into business for themselves.

What energies are active in shaping pharmacy? Are pharmacists, physicians, manufacturers or patrons, leading influences, all of them separately, jointly, or by chance? Are the environments of pharmacy changing? How are they being constructed—according to method and forethought, or without concern and direction?

The foregoing are some of the thoughts that possibly occupied the minds of those who addressed the graduates, soliciting them not to be absorbed so intently in their own success as to be unmindful of a responsibility to pharmacy and a duty to the institutions which provided opportunities for pharmaceutical education. Unselfish desire to be of service to others does not always enter into calculations, though really it is the greatest and highest quality of success.

Pharmacy may be regarded as a composite votary, and the usefulness depends upon all who are engaged in and for it; more than that, for human consciousness creates ideals and the past has labored for the possibilities we have to-day. The knowledge of the past will profit us little unless we acquire wisdom along with it, so that proper use of knowledge may be made and applied for our improvement.

> "Knowledge and Wisdom, far from being one,
> Have ofttimes no connection. Knowledge dwells
> In heads replete with thoughts of other men;
> Wisdom, in minds attentive to their own.
> Knowledge, a rude, unprofitable mass,
> The mere materials with which Wisdom builds,
> Till smoothed and squared and fitted to its place,
> Does but encumber whom it seems to enrich.
> Knowledge is proud that he has learned so much.
> Wisdom is humble that he knows no more."

The advice to the graduates is prompted, of course, by the experiences of a lifetime, because there is the realization that we cannot back-track, but only can go forward to "fill the unforgiving minute" of the future; that self of ours, constantly being left behind us, has heard a great deal of unheeded advice from its seniors, just as our recent graduates listened to the messages of their seniors. They go forth with ambitions, just as the preceding generations, for imagination is the first essential to success.

The meaning of " commencement " in connection with the closing formalities of schools and colleges is not always fully comprehended by the graduates until they are called upon to show their capabilities. Then it dawns upon them that initiative rests with them; now, " yes " and " no " must be their own saying. In the school it was largely a higher or lower mark, now some achieve success or see others scaling the heights they expected to reach. They now will realize, if they did not before, that their acquired knowledge is not the end, but the commencement, the means that prepared them for entrance into the great whirlpool of human activity wherein they will be tried, their personality developed, their capabilities and courage put to the test. Experience will teach them that the successful man is seldom, if ever, the favorite of luck, but he achieved because he persisted and went hard and fast after all he got; many would share his successes but flinch when they learn the price he paid. Success requires both mental and physical energy, and the quality is the outward evidence of inward hopes and ideals.

Although there are voices to the contrary, pharmacy comprehends to-day a broader ground and more inviting field than ever before; it is also safe to say that pharmacy is, year by year, claiming a better class of students. That there is discontent, no one disputes, but if there was undisturbed satisfaction, there would be no progress. The point is, we do not compare our present condition with the past but with an ideal state, created by consciousness of the deficiencies of pharmacy. It is this kind of dissatisfaction which stimulates progress.

The opportunities for pharmacists are becoming greater because there will be more of a demand for American products, and so we may expect pharmacy students to enter related fields of activity that contribute, in one way or another, to the very complex requirements of the retail pharmacy. But the retail pharmacy itself will continue to employ the greater number. The following vigorous verses by Herbert Kaufman may be applicable; they are reproduced by permission from Kaufman's Weekly Page. Copyright by Herbert Kaufman.

" There's room enough for all of us, but not in every place;
There's chance enough for every one, but not in every race;
They may not have a job for you in town just at this minute,
But there's a nearby city with far better prospects in it.
Your trade is overcrowded? Well, new industries are starting;
A driver out of work can take to other things than carting;
Ambition does not fold its hands and quit at one sound thrashing;
You aren't worth a tinker's dam if you can't stand a smashing.
We don't pronounce the P in luck, but Pluck 's the way we spell it.
If you are worth your salt, your future course will quickly tell it.
Adapt yourself to circumstance and seek a new location;
You aren't forced to stick to one spot or vocation."

Pharmacy offers the greatest possibilities for coöperation between employer and employee, potential with a quality of helpfulness that does not obtain in other business pursuits. The former, through experience, has gained a deeper knowl-

edge of men and things to be found in practical life, while the latter has the advantages of modern pharmaceutical education. There is the opportunity of each telling the other all he knows in regard to what will help both, whereby the service of the pharmacy and of pharmacy will be enhanced.

Bernard Meador presents the thought in this way:

> The man who trains his assistants to do his work in accord with his idea; the man who hands the key to every situation to some one else below him, is the man who is making progress—fastest and surest. We build as we are assisted to build—and we are assisted to build as we teach others to do our work.
>
> No man prepares himself for greater opportunity until he prepares some one else for the opportunity he has already accepted and lived up to. No man takes a bigger and more important place in business or in life unless he has prepared the way for some one else to do the work he is leaving. It is the way of life, the way of evolution, the way along which life's greatest, highest and finest success is attained.

Applying the thought further, the early affiliation of pharmacy graduates with associations is highly advantageous: interchange of ideas and experiences, made possible by associations, promotes educational development, and the right kind of educational development is a most powerful aid and a means of economizing energy in the upward struggle of a young pharmacist. E. G. E.

PHARMACY SCHOLARSHIPS AND ENDOWMENTS.

IN 1904, Fairchild Bros. & Foster established a pharmacy scholarship in Great Britain, open to any apprentice or assistant, of either sex, preparing to qualify under the Pharmacy Act, 1868, or the Pharmacy Act (Ireland), 1875. The primary condition imposed is that the applicants satisfy the requirements for admission to the respective qualifying examination, *i.e.*, the Minor Examination in Great Britain or the License Examination in Ireland.

One scholarship of the value of £50, tenable for one year, is awarded annually as the result of examinations conducted simultaneously at designated points in England, Ireland, Scotland and Wales. The Fairchild scholar is at liberty to select any well-known school or college of pharmacy, or any other well-recognized educational institution where pharmaceutical subjects are taught to meet the requirements of the syllabus of the Pharmaceutical Society of Great Britain or Ireland, where he or she proposes to study for the qualifying examinations. The money of the scholarship is devoted to paying the college fees and expenses, and what is over is paid to the scholar during the school period.

The object of the founders of the scholarship being to encourage study during the period of apprenticeship, and thus materially to facilitate and enhance the chances of success of the diligent student on entrance for the qualifying examination, no student already qualified or holding another scholarship can obtain this one.

The subjects of examination are concerned with elementary chemistry, materia

medica, practical pharmacy and prescription reading, and elementary business knowledge.

The scholarship is in charge of a Committee of Trustees, now composed of the following pharmacists: Messrs. Peter Bōa, Albert Hagon, William Kirby, A. J. Phillips, W. F. Wells and A. E. Holden.

President Caswell A. Mayo, in his presidential address, was permitted to announce the establishment of a Fairchild Scholarship in the United States, whereby the sum of $300 will be annually provided and given to a deserving student, to be selected by a Commission composed of the Presidents of the American Pharmaceutical Association, the National Association of Boards of Pharmacy, the American Conference of Pharmaceutical Faculties and the editor of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION. There are no restrictions placed by Mr. Fairchild in the award of the scholarship; his only request is that he may have an opportunity of reviewing the plans of the Commission after they have been formulated. The report will doubtless be laid before the Association at the Atlantic City Meeting, September 5–9, 1916.

President Mayo, in commenting on this gift, said that he was certain this generous provision, placed, as it is, in the hands of the national body of pharmacists, will not only prove of great value in encouraging the fortunate recipients to pursue their studies, but will serve as an example for others who have attained financial success in the field of pharmacy, to give substantial and public acknowledgment of their obligation to pharmaceutical education, by making substantial gifts to the cause.

This, then, aside from making acknowledgment of this gift, is one of the objects of this writing. American pharmacy has made possible many of the successes of the manufacturers in this country, though the honesty, energy and business qualities active in these institutions must be given earned praise and credit. The American Pharmaceutical Association has been largely instrumental in shaping and sustaining pharmacy. The schools of pharmacy have performed their duty with honor and altruistic motives that are ever deserving of our recognition.

Many, if not all, of the schools and colleges engaged in teaching pharmacy have one or more available scholarships, some have endowments, but only one has been substantially provided for by such a gift. A number of State associations have established scholarships in the pharmacy departments of State universities. Eventually, further provisions will be made for pharmaceutical education, especially in view of the fact that every educational institution is dependent, to some extent, on financial income other than fees from students, in order to efficiently carry on the good work they are engaged in. When the essentials of success in the various divisions of pharmacy are thoroughly analyzed, then better support will be given to the organizations and mediums that have contributed to these possibilities. And this is said with no contamination of disappointment but with a happy assurance.

E. G. E.

SECTION ON HISTORICAL PHARMACY, AMERICAN PHARMACEUTICAL ASSOCIATION

EAST INDIAN VOYAGES OF THE SIXTEENTH AND SEVENTEENTH CENTURIES IN THEIR RELATION TO DRUGS, SPICES AND DYE-STUFFS.*

BY ARTHUR W. LINTON.

ENGLISH VOYAGES.

Marchaunt Adventurers, chanting at the windlass,
Early in the morning, we slipped from Plymouth Sound,
All for adventure in the great New Regions,
All for Eldorado and to sail the world around!
Sing! The red of sun-rise ripples round the bows again.
Marchaunt Adventurers, O sing, we're outward bound,
All to stuff the sunset in our old black galleon,
All to seek the merchandise that no man ever found.

—ALFRED NOYES, "A Knight of the Ocean-Sea."

The same year that Vasco da Gama started on his first voyage to the Indies, the elder Cabot, a Venetian at that time in the service of King Henry VII of England, reached the shore of Labrador. His expedition was the first (if we except the Vikings) to reach the mainland of America. The next year his son Sebastian, also under the flag of St. George, sailed to the same coast that his father had discovered. We read that he thought verily to have passed on still on the way to Cathaia, and would have done so if mutiny had not hindered him and made him return. (Hakluyt, vii, p. 150.) Turning to the southward, he explored the coast as far as Cape Hatteras or farther. At that time the northern continent seemed only a barrier in the way of a voyage to Cathay, and such expeditions as were sent by the English were expected to find a northwest passage to the sea which washed the Indies. One of these efforts was made in 1517, another in 1527. The English were turning their discoveries to some account even at this period, for while Portuguese and Spaniard were bringing gold and spices each from his own particular India, English fishermen were taking cod on the Banks of Newfoundland.

In 1527 we find Robert Thorne, an Englishman who had long been resident in Seville, addressing to King Henry VIII a declaration setting forth the rich treasures which the Emperor (Charles V) was at that time receiving from the Indies. "Also to write unto your Lordshippe of the new trade of spices of the Emperour, there is no doubt that the Islands are fertile of Cloves, Nutmegs, Mace, and Cinnamon, and that the saide Islands, with others thereabout, abound with golde." Urging the northwest route as a feasible and desirable one, Thorne mentions as a particular advantage that navigators travelling that way "may pass . . . in perpetual clereness of the day without any darkness of the night . . ." (Hakluyt, ii, pp. 159–181.)

Sir Humphrey Gilbert, "Knight of the Ocean Sea," writing in 1576 to prove the existence of a northwest passage and its advantages, urges the shortness of the

* Continued from p. 481, May issue.

voyage which will lead to "all the wealth of the East parts . . . gold, silver, precious stones, cloth of gold, silkes, all manner of spices, grocery wares, and other kinds of merchandise of an inestimable value. . . ." (Hakluyt, vii, pp. 158–190.) Richard Hakluyt, in 1578, advising certain gentlemen who were about to accompany Martin Frobisher on a northwest voyage, urges them to seek "Cochenile, natural to the West Indies . . . or any Roote, Berrie, Fruite, Wood or Earth fit for dying." (Hakluyt, vii, p. 244.) In 1589 we find Elizabeth granting to Adrian Gilbert authority "to seek . . . the passage to China and the Isles of the Moluccas." (Hakluyt, vii, p. 375.) John Davis, in 1585, 1586, and 1587, made three separate attempts to reach the Moluccas by the northwest passage.

There remained another possibility of a shorter way to India. In 1553 we find an English expedition of three vessels under Hugh Willoughby attempting a northeast passage. The ships became separated in a storm, and two of them, the *Bona Speranza* and the *Confidentia*, became ice-bound, the crews perishing to a man, probably in January, 1554. The *Edward Bonaventure*, commanded by Richard Chancellor, found its way into the White Sea. Here Russian settlements were found, and the Englishmen explained that they had come for "amitie and commerce." Chancellor and some companions were taken the long journey of 1500 miles by sledges to visit the Czar, Ivan the Terrible, at Moscow. Here they were kindly received and entertained in the barbaric court. Ivan showed great willingness to enter into commercial relations with the English.

Chancellor's return, in 1554, with a message from the Czar requesting that English merchants visit Russia, and offering fullest freedom and protection, aroused great interest among London traders. In February, 1555, the Muscovy Company was chartered, with exclusive privilege of trade to Russia. The same year two ships, the *Edward Bonaventure* and the *Philip and Mary*, were despatched with goods for trade, and with agents of the company to take up their residence in Russia. The two started on the return voyage in 1556, accompanied by the *Confidentia* and *Bona Speranza*, which had been rescued from the ice by the Russians. But these two ill-fated vessels were now wrecked and lost, and later in the voyage the *Edward Bonaventure* was driven ashore on the coast of Scotland. The Russian ambassador, who had sailed in the *Edward*, was saved. Such were the tragic voyages which opened the career of the Muscovy Company, which was to become prosperous, and for a number of years to carry on a profitable Russian trade.

The company still continued its search for the northeast passage, sending one venture under Burroughs in 1556, and one under Pet and Jackman in 1580. In the commission given to the commanders of the latter voyage we find mention of articles to be carried "for a shew of commodities." The list includes: "Red Oker for painters, Sope, both kinds, Saffron, Aquavitæ, Brimstone, and Antimonie." The death of Jackman and the failure of this expedition did much to discourage further efforts to seek a northeast passage.

Very early in its history the Muscovy Company instructed the factors sent to Russia "to use all wayes and means possible to learne how men may passe from Russia either by land or sea to Cathaia." In 1558, Anthony Jenkinson journeyed down the Volga to the Caspian, by coasting vessel around the northern end of the Caspian to Koshak, and hence by caravan on a long and eventful journey to the ancient city of Bokhara. Jenkinson found that the trade of this Bactrian city was much decayed. Such merchants as resorted there from India, Persia, and Russia were comparatively poor. He learned that the overland route from China to

Bokhara was closed because of war in central Asia. Further, very few spices were being brought to Bokhara. Hence the prospects of obtaining the products of Asia by trading to Bokhara did not seem promising to Jenkinson.

In 1561, Jenkinson was sent to investigate the Persian trade. "And for the better knowledge to be had in the prices and goodness of such things as we do partly suppose you shall find in the parts of Persia, we doe herewith deliver you a quantity of certain drugges, whereby you may perceive how to know the best, and also there are noted the prices of such wares and drugges as be here most vendible."

Between 1561 and 1581 there were six "voyages" or trading expeditions to Persia. A letter from Arthur Edwards, one of the company's factors, under date of April 26, 1566, gives interesting details in regard to the Persian and Syrian trade. Edwards mentions the following as commodities to be brought out of Persia into England: "Raw silk, pepper, ginger, nutmegs, brimstone, allom (alum), gals (nutgalls), cloves and yew for bow-staves." He also describes the traffic at Aleppo in Syria: "wherein are many Venetians . . . who buy gals, tallow, saffron, skins, cotton-wool . . . and also will serve us of all kinds of spices, we giving them sufficient warning to fetch it in the Indies and will deliver it us in Shamaky." Edwards discusses the great quantities of alum to be had in a certain province of Persia, with the probable cost of transportation to England.

One other reference by one of the factors in a letter to his company cannot fail to interest: "There is a great river which falleth into the Caspian Sea by a town called Bachu (Baku) neere unto which is a strange thing to behold. For there issueth out of the ground a marvelous quantitie of oil, which oil they fetch from the uttermost bounds of all Persia, it serveth all the country to burn in their houses. This oil is black and is called Nyfte. . . . There is also by the said town of Bachu another kind of oil which is white and very precious; it is supposed to be the same that is here called Petroleum." Little did the Englishman dream that in the twentieth century fleets would sail the Caspian to transport the Bachu oil, and that battles would be fought for the possession of this region. (For the records of the activities of the Muscovy Company, see Hakluyt, vol. iii; also Gerson and Vaughn, "Studies in the History of English Commerce in the Tudor Period.")

In still another way English merchants of the sixteenth century were seeking to secure a share of the East Indian trade. As early as 1511 to 1534 we find mention of "certain tall ships of London, Southampton, and Bristol" making voyages to Sicily, Chios, and Crete, in the Mediterranean. ("Early Voyages in the Levant," H. S., p. ii.) In 1569, Gaspar Campion, who visited Chios (Scio), found, among the principal commodities growing in the island itself, "silke and masticke." Other commodities of Chios and nearby islands and coasts were galls and oil (olive oil). He says that while in Spain oil cost 25 and 30 pounds per ton, in the dominions of the Turk it could be had for five pounds per ton. (Hakluyt, v, p. 111.) The travels of Jenkinson and other agents of the Muscovy Company had done much to call attention to the possibilities of trade in the eastern Mediterranean. In 1581, Elizabeth granted a charter to the Company of Merchants of the Levant. The company sent out its first ship, the *Great Susan,* in 1582. A factory was established at Constantinople.

Certain remembrances prepared by Richard Hakluyt for a friend about to go to Turkey tell us something of the manner in which the demand for dyestuffs stimulated exploration. Extracts follow: "1. Anile (indigo) wherewith we color Blew to be brought into this realm by seed or roote. 3. And also all other herbs

used in dying. . . . 5. To learn all earths or minerals used in dying and their natural places. . . . 8. To procure from Muhaisira, a city in Ægypt . . . the seed of Sesamum the herbe . . . of this much oyle is made and many mills set on work about the same. . . . 14. To endevor a vent of our Saffron." (Hakluyt, v, p. 229.)

A traveller who visited Egypt in the sixteenth century visited the source of a highly-esteemed article of medicine of that period. He writes: "Without the city (Cairo) . . . are to be seene divers piramids among which are three marvelous great. Out of them are dayly digged the bodies of ancient men not rotten but all whole. . . . And these dead bodies are the Mummies which the Phisitians and Apothecaries doe, against our will, make us to swallow." (Hakluyt, v, p. 336.)

The Levant Company enjoyed a long, prosperous, and honorable career, not passing out of existence until 1825, but we cannot follow its history further than we have done.

It is not for us to tell the story of the English adventurers of the Elizabethan period: how Drake and Hawkins, Grenville and Oxenham, and many others in their little ships of one or two hundred tons went out to meet the navies of the King of Spain; how they lay in wait for the treasure-ships on their homeward voyages; how they sacked the cities of the Spanish Main; how on occasion they sailed into the harbors of Spain itself and cut out rich prizes. All of this has been the theme of song and story since the days when they lived and fought. However, a few of these exploits have a direct bearing upon the English quest of a way to the Spiceries, and these will be mentioned.

In 1587, Sir Francis Drake sailed into the harbor of Cadiz and wrought havoc upon the Spanish fleet which was preparing for the great attack to be made upon England the following year. After further harrying the coasts of Spain and Portugal, Drake ran to Saint Michael, in the Azores, where he surprised and captured a great East India carrack, the *Sant Philip*. "And here . . . it is to be noted that the taking of this great Carak wrought two extraordinary effects in England, first that it taught others that Caraks were no such bugs but that they might be taken . . . and secondly, in acquainting the English nation more generally with the peculiarities of the exceeding great riches and wealth of the East Indies. . . ." (Hakluyt, vi, pp. 442–443.)

Still more notable in its consequences, perhaps, was the exploit of John Burroughs. He had gone with a squadron to the Azores to lie in wait for the West Indian treasure-ships. He was informed that no West Indian fleet would be sent that year, but that the East Indian carracks might be expected very soon. Waiting for these, Burroughs captured two out of the five. The *Madre de Dios* did not surrender until after she had made a stout resistance. The chronicler says: "And here I cannot but enter into the consideration and acknowledgment of God's great favor . . . who by putting this . . . into our hands discovered their secret trades and Indian riches which hitherto lay strangely hidden." This vessel of 1600 tons was the largest the English had ever seen, and when viewed in Leaden Hall caused profound astonishment among the islanders. Her lading "consisted of spices, drugges, silks, calicoes, quilts, carpets, and colors. The spices were pepper, cloves, maces, nutmegs, cinamon, greene ginger the drugs, benjamin, frankincense, galingale (galangale), mirabolans, aloes zocotrina, camphire; the silks, damasks . . . ; also pearls, muske, civet, amber-griece, elephants' teeth (ivory), porcellan of China, coco-nuts, hides, ebenwood as black as jet." (Hakluyt, vii, pp. 105–118.)

The first English vessels to pass through the Straits of Magellan, as well as the first to reach the Indies, were those commanded by Drake on his celebrated voyage of 1577–1580. Of the five vessels which started on this voyage, Drake's flag-ship, the *Pelican,* later called the *Golden Hind,* was the largest, and it was rated at 100 tons. Two of the smallest were abandoned before the Straits were reached. Drake stopped for refreshment at Port St. Julian, on the coast of Patagonia, where Magellan had rested on his circumnavigation, and found there the skeleton of a man Magellan had executed for mutiny. In this thing, too, Drake was to follow Magellan, for he found it necessary to condemn to death Captain Doughty, his own warm friend and second in command, because he tried to steal away with one of the vessels.

The *Golden Hind, Elizabeth,* and *Marigold* passed the Straits, but were dispersed by a terrific storm. The *Marigold* was never heard of; the *Elizabeth,* Captain Winter, repassed the Straits and returned to England. Drake himself was driven far to the south, but in beating back he discovered Cape Horn. Before this it had been supposed that the Straits were the only opening in a continent which extended on to the Pole Antarctic.

Drake now followed up the western coast of South America, spreading terror as he went. The Spaniards had believed the waters of the Pacific to be safe from all intrusion, and their commerce as well as their coast towns fell an easy prey to Drake's little company. His most notable exploit was the capture of the Peruvian treasure-ship *Cacafuego.*

The *Golden Hind* continued up the coast, and by some is believed to have gone as far as Vancouver Island. Turning southward, a stop was made near San Francisco Bay; the surrounding country Drake named New Albion. Here the natives were treated so kindly that they wept at the departure of the Englishmen. Now,

> Far out of sight of land they steered, straight out
> Across the great Pacific . . . .

After visiting some of the islands of the Philippine group, the *Golden Hind* reached the Moluccas, the goal of all voyagers to those seas. The King of Ternate welcomed Drake and treated him kindly, supplying "rice, Hennes, imperfect or liquid sugar, sugar-cane, . . . store of cloves, and meal which they call Sagu (sago) made of the tops of certain trees tasting in the mouth like soure curds. . . ." At Baratreve they found nutmegs, ginger, long pepper, lemons, and sago. At Java Major (Sumatra) the voyagers were received with courtesy. They reported the "French pocks" very common in the island and "cured by sitting in the sunne, whereby the venomous humour is drawn out."

The *Golden Hind* now headed for the Cape of Good Hope, and had so pleasant a passage that they believed the Portuguese had lied in reporting this the most dangerous cape in the world. On November 3, 1580,

> A little weed-clogged ship
> Grey as a ghost glided into the Sound
> And anchored, scarce a soul to see her come
> And not an eye to read the faded scroll
> Around her battered prow, "The Golden Hind."
>
> —Alfred Noyes, "Drake," Book VII

Long before Drake returned the fame of his exploits on the South American coast had reached Spain, and Philip was angrily demanding that immediately on his return Drake be hanged as a pirate. Elizabeth, following her policy of

keeping enemies as well as friends in doubt as to her intentions, is said to have made answer that "if we find that Drake has injured our friends, he will be duly punished." Elizabeth braved Philip's anger by honoring the *Golden Hind* with her royal presence, and Francis Drake knelt before her, to rise Sir Francis. (Hakluyt, xi, pp. 101–132.)

Once again English merchants had to be shown that with no great force Englishmen might sail in the Indian seas, might plunder Spanish ships and traffic for spices, and still come home safely. In 1586, Thomas Candish (or Cavendish) sailed from England, through the Straits of Magellan, up the South American coast, through the East Indies, and home by Cape of Good Hope, returning in 1588. Seated in a corner of the White Hart Inn at Plymouth, Candish penned a letter to Lord Hunsdon, the Queen's chamberlain, begging him to inform Her Majesty of the service he had rendered her, " . . . For the places of their wealth, whereby they have maintained and made their warres, are now perfectly discovered, . . . I ran along the coast of Chili, Peru, and Nueva Espana . . . burnt and sunke 19 sails of ships . . . matter of most profit was a great ship which I took at California which came out of the Philippines. . . . I sailed among the Islands of the Moluccas where . . . I was well intreated . . . where our countrymen may have trade as freely as the Portugals if they will themselves. . . ." (Hakluyt, xi, pp. 376–378.) Among the spices which Candish brought home was star anise, which seems to have reached Europe for the first time in his vessels. (Flückiger and Hanbury, p. 21.)

Candish had little to tell that Drake had not told eight years before, but the temper of the English had changed much since Drake's return. Only a few months before Candish returned the Great Armada had come up the Channel. Spanish sea-power, although far from being destroyed, would never again inspire with terror as it had done.

Still, Englishmen were slow to embark in a new venture, and three more years of discussion were required. In 1591 the first trading expedition for the Indies was fitted out. The *Penelope,* admiral; *Marchant Royall,* vice-admiral, and *Edward Bonaventure,* "rere-admiral," composed the little fleet. They were commanded by George Raymond. By the time the Cape was reached, scurvy was raging among the crew. A stop was made, cattle purchased from the natives, and seal and penguins killed. The ship's companies had been so depleted that the *Marchant Royall* was sent back. Soon after leaving the Cape, the *Penelope,* with all on board, went to the bottom in a storm. Captain Lancaster, in the *Bonaventure,* held on for the Indies. Reaching the Malay Peninsula, the sick men were landed. Within a short time the company was reduced to 32 men and one boy, many of the survivors sick. Notwithstanding their weakness, they captured a number of small Portuguese vessels, and Lancaster would have captured more, but that the crew took advantage of his sickness to head for home. Misfortune still followed them. In the Atlantic they were driven by adverse winds to the American coast, and here drifted helplessly for a time. While most of the crew were ashore the cable broke, and the bark drifted out, manned by five men and a boy. Somehow this little company brought the ship into Plymouth. The men left in the West Indies were brought home by a French vessel.

The water-damaged spices in the hold of the *Bonaventure* had cost a terrible price in lives of British seamen. This much the expedition had done: it had shown that a Pope's bull could not give a secure title to India and its spices.

(Hakluyt, vi, pp. 387–407; see also Beckles Willson, "Ledger and Sword," i, pp. 10–13.)

The second attempt of London merchants to trade to the Indies was even less successful than the first. In 1596, Captain Wood sailed with three small ships, laden with cloth, knives, and bullion, to be exchanged for spices. Not one ship or seaman was ever to see England again. By devious ways the story came back of the capture of a Portuguese ship in Indian waters, of fearful losses by fever, of shipwreck in the West Indies on the return voyage, and of murder of the survivors by the Spanish. ("Ledger and Sword," i, pp. 14–15.) Surely only a great faith could have seen beyond these feeble attempts and tragic failures the founding of a colonial empire.

Although the *Edward Bonaventure* of the first English voyage had returned with a cargo of spices before Houtmann had started with the first Dutch expedition, in the last years of the century the Hollanders were leaving the English far behind in the race for the Indies. So many vessels were the Dutch using in the Indian trade that in 1599 they sent agents to London to buy or charter English ships. The answer given to these agents was as follows: "Our merchants of London have need of all our ships and have none to sell to the Dutch. We ourselves intend forthwith to have trade with the East Indies." ("Ledger and Sword," i, p. 20.)

For there were now signs of a real awakening among London merchants to the possibilities of the Indian trade. It was realized that only by a strong organization could anything be accomplished. A movement was afoot to secure a charter conferring exclusive right to the Indian trade for a term of years. The first meeting held by the promoters was on September 24, 1599. A notable gathering it was, including members of the Turkey Company and other merchants and men of substance in the city, several aldermen, and the Lord Mayor himself. Then there were men who had sailed with Drake and Cavendish, veterans of the northwest and northeast voyages, men who had braved the power of Spain on the seven seas and were willing to do so again. Within a short time 33,000 pounds were subscribed and steps were taken to obtain a charter. Now ensued long-drawn-out delays. Elizabeth was negotiating a treaty with Spain, and wished to do nothing to offend that nation.

A memorial was drawn up showing "Certayne reasons why English Merchants may trade into the East Indies especially to such parts as are not subjecte to the Kinge of Spain and Portugal. . . ." On the last day of the sixteenth century, Elizabeth signed the charter of the Governor and Company of Merchants of London trading to the East Indies; conferring the privilege of exclusive trade into the "countries and ports of Asia and Africa, and into and from all of the islands, ports, towns, and places of Asia, Africa, and America, or any of them beyond the Cape of Buena Esperanza or the Straits of Magellan, where any traffic may be used." (Purchas, ii, pp. 366–391; also "Ledger and Sword," i, p. 43.)

Long before the charter had been granted, the merchants had been making preparations for a voyage. The first vessel purchased by the company was the good ship *Susan;* later the *Hector* and *Ascension* were acquired. The adventurers then sought for a larger and better ship; one that was fitted not only to carry a cargo, but to hold her own in a fight with the best of the Portuguese vessels. Such a ship was found in the *Malice Scourge,* a ship of 600 tons burden, with a privateering record. She was rechristened the *Red Dragon.* The cargo purchased consisted of iron and various cloths, such as kerseys, broadcloths, and Norwich stuffs. It was the English policy from the first to make the Indian

trade build up home industries by sending the products of English factories to barter for spices. ("Ledger and Sword," i, chapter ii.)

The commander and ships' captains were very carefully chosen. The chief in command was Captain James Lancaster, captain of the *Bonaventure*, of the voyage of 1591. All of the other captains had made the Indian voyage before. ("Ledger and Sword," i, p. 41.) Among the many records available of preparations for the voyage, it is interesting to note that "Edmund Scott, who pretends to a knowledge in the choice of drugs and spices, is to be employed in the voyage upon putting in 200 pounds venture." ("Calendar of State Papers," Colonial, East Indies, 1513–1616, p. 119.)

The "four tall ships" sailed from Woolwich, February 13, 1601. No farther from home than the coast of Guinea, a Portuguese carrack was sighted, and the English were soon transferring 146 butts of wine, besides stores of oil and meal, from her hold to their own. Probably the plentiful supply of wine thus provided did much to bring on the scurvy which soon ravaged the crews. The Admiral had taken the precaution to bring in his own ship "certain bottles of juice of limons which he gave to each one as long as it would last, three spoonfuls every morning fasting." The other vessels seem to have been unprovided. By the time the Cape was reached, 105 men had succumbed, and a six weeks' stop was necessary to restore the survivors. Another long stop was made at Madagascar.

On June 2, 1602, the squadron reached Achin, in Sumatra, where were found 18 sail in the harbor, including Spanish, Portuguese, Dutch, and traders from various parts of Asia. Learning the name and rank of the native potentate, Lancaster filled in one of the form letters signed by the Queen, with which he was provided, and hastened to present this to the monarch, together with a belt, some pistols, plumes, looking-glasses, glass toys, and other trinkets. Doubtless the letter made a favorable impression, but the gifts won the King's heart, and he was ready to promise anything. While he was in this mood Lancaster secured his signature to a treaty. The Admiral had much to learn in regard to native princes and their promises; he soon found that it was one thing to hold a treaty and another to secure cargoes of spices.

However, Lancaster bethought him of another way to obtain a lading. English vessels need not lack cargoes so long as Portuguese carracks were on the seas. Leaving two factors, the English sailed from Achin, and within a short time captured a 900-ton prize laden with cloves and pepper. Returning to Achin, Lancaster loaded the *Ascension* and ordered her home to gladden the hearts of the waiting merchants. The *Susan* soon followed, while the *Dragon* and *Hector* went to Bantam, in Java. Here no difficulty was met in establishing a factory, and, English wares proving popular with the Javans, trade went merrily on. The Admiral purchased a 40-ton pinnace, and sent her to the Moluccas to establish trade there, while he with his two remaining vessels returned to England. The King of Bantam sent to Queen Elizabeth as a present "certain Bezar-stones, very faire." (The bezoar-stone is a concretion in the alimentary canal of ruminants, especially of a certain species of goat. Bezoars were formerly considered as very valuable in medicine. They are frequently mentioned in records of Indian voyages.) Elizabeth was never to receive the present of the King of Bantam, as she died before Lancaster reached home. (Purchas, ii, pp. 392–437.)

One day in June, 1603, a messenger rode into London with the message for the East India Company that the *Ascension* was in Plymouth. Letters were written to the West Country that provision be made for the comfort and relief of

the sick among the crew, and further forbidding the officers to break bulk or sell anything until London was reached. A record later in the month says, "The *Ascension* is in the River," and mentions that six canvas suits *without pockets* were to be made for the use of the porters employed in handling the pepper and cloves. The cargo of the *Ascension* consisted of 210,000 pounds of pepper, 1100 pounds of cloves, 6030 pounds of cinnamon, and 4080 pounds of gum lacquer. ("Calendar State Papers," Colonial, East Indies, 1513–1616, p 138.) The other vessels of Lancaster's fleet arrived in due time, bringing altogether 1,000,000 pounds of spices.

The company, although much embarrassed by deaths among the members and by difficulty in prompt disposal of the spices, in March, 1604, sent a second voyage, using the same ships that had gone on the first. Henry Middleton was placed in command. The journal of this voyage is the only unmutilated record we have of an early English voyage to the Indies. Some few incidents of this venture will be mentioned. As usual, the crews suffered fearfully from scurvy while opposite equatorial Africa. Under date of May 6, we find the entry that " . . . many of our men are sick of scurvy, calenture, bloody flux, and worms, being left to the mercy of God and a small quantity of lemon juice every morning; our physician shipped for that purpose being as unwilling and as ignorant in anything that might help them." ("Voyage of Sir Henry Middleton," H. S., p. 6.) It is difficult to understand how, after the experience of Lancaster on the previous voyage, the company could have neglected to provide an adequate supply of lemon-juice.

The Admiral had orders not to stop at the Cape for refreshment, but when the sick men saw that he intended to run past, a cry for mercy went up, and Middleton, looking out of his cabin door, " . . . where did attend a swarm of lame and weak diseased cripples," was moved to pity and consented to run into Saldania Bay. (This harbor, named in honor of Saldanha, a Portuguese commander, was resorted to by the ships of all nations that followed the Cape route. It is our modern Table Bay.) The sick were all restored by the fruits, vegetables, and fresh meat obtained at Saldania, but before the squadron reached Bantam in December conditions were just as bad again. Here the Dutch proved good friends, meeting the English outside the harbor with fresh food and offers of assistance. The latter were gratefully accepted, since the English crews were scarcely able to bring the vessels into the harbor.

At Bantam they found relief from the scurvy, only to fall victims to flux—doubtless tropical dysentery. In almost every day's record in the journal we find mention of one or more deaths from this dread disease. The Dutch had early discovered the water of Bantam to be unwholesome, and the mortality among the English stationed there was always high.

Leaving the *Hector* and *Susan* to be loaded with spices and despatched for England as early as possible, Middleton, with the *Dragon* and *Ascension*, went on to the Island of Amboyna. The Portuguese had a fort there, and upon Middleton's imparting to them the news that Elizabeth was dead and that early peace between Spain and England might be expected they agreed to allow the English to trade. However, the Dutch spoiled this arrangement by appearing with a strong force and compelling the surrender of the Portuguese. Middleton saw that his prospects for trade were ruined and went on to the Moluccas.

While in the Moluccas the English witnessed the capture of the Portuguese fort on Tydore, as has been recounted. They were able to secure a considerable quantity of cloves by barter, but were unable to make satisfactory arrangements

for future business. In the meantime the *Ascension* had visited Banda and trafficked for nutmegs. Returning now to Bantam, Middleton found that of the 24 men left there, 12 had succumbed to flux.

The *Dragon* and *Ascension* now sailed for home. Off Saldania Bay they found the *Hector* almost helpless as the result of a terrific storm in which her consort, the *Susan*, had perished. The *Hector* was repaired, and the three vessels reached home in May, 1606. The two first ventures of the company, considered as one, had paid a profit of 95 percent on the investment, not including interest. (" Voyage of Sir Henry Middleton," H. S.; also " Ledger and Sword," i, chapter iii.)

We cannot continue with the records of individual voyages of the East India Company, but must be content with mention of some of their difficulties and defeats, and with a general view of their achievements. English trade did not develop with great rapidity, as had the Portuguese and the Dutch. During the early years of its history the English Company was able to send no more than two to four ships annually, and the fifth venture consisted of a single ship. In numbers of ships and men, as well as in amount of capital available for trade, the English at this period were far weaker in the Indies than either Portuguese or Dutch. How did they fare in competition with these powerful rivals?

We have noted the capture of Portuguese carracks before the English first traded to the Indies. This policy was continued both by the commanders of the two independent voyages of 1591 and 1596, and by the East India Company's captains. Lancaster, of the company's first voyage, had found it easier to obtain spices by capture from the Portuguese than by barter with the natives. So we see that from the beginning the English had been the aggressors. It is true that at this time there was war between Spain and England and every English merchant vessel was a privateer. However, even after the establishment of nominal peace, conflicts were frequent. There was seldom a time when either one would not attack the other if it was considered that advantage could be gained by so doing. The English seem almost always to have been the victors in these contests. The small English vessels could outsail the carracks, and English gunners could generally shoot with greater accuracy than those of Portugal. During the early decades of the seventeenth century the Portuguese were being crowded out of their factories by the Dutch, and their vessels were being sunk and captured by both Dutch and English, so that their power in the Indies rapidly declined.

One notable incident of the struggle between Portuguese and English was the Ormuz affair. It will be remembered that Albuquerque had found Ormuz dominating the commerce of the Persian Gulf and had captured it from the Persians. Under the Portuguese the city had continued to enjoy great prosperity. Now the English were contesting with the Portuguese for the commerce of Persia, and in 1620 and 1621 there were several pitched battles in and near the Persian Gulf. Observing the growing power of the British, the Khan of Shiras, who ruled considerable territory bordering on the Gulf, undertook to force them to aid him in driving the Portuguese out of Ormuz. The company's factor at Ispahan having despatched a rich consignment of silks for Jask, the Khan captured the caravan and refused to release it, and also threatened to stop all further trade with the interior unless the English would allow their ships to aid him in the capture of Ormuz. Thus constrained, and probably not unwilling to further weaken the Portuguese, the English, in 1622, diverted several of their vessels from the Molucca trade long enough to participate in the attack on Ormuz.

After a lengthy siege the Portuguese were forced to surrender. The Portuguese captives fell into the hands of the English and their lives were spared. (Purchas, x, pp. 342–374.)

The record of the relations between Dutch and English in the Indies is that of a continuous series of jealousies, accusations, and bickerings, finally breaking into armed strife. It is very difficult to obtain an unbiased view of the relations, especially since most of our sources have been of English origin. The Dutch were in the Indies in far greater strength than the English, naturally they wished to control the trade, unavoidably there was strife. In the latter part of the second decade of the seventeenth century the Dutch, on one pretext or another, seized several English vessels.

The English Company drew up a formal protest, which was presented to the home government; this was met by the Dutch sending a long list of offences committed by the English. Commissioners were sent from Holland to negotiate with King James for a settlement. The proceedings dragged on and promised little hope of relief. The English Company grew impatient and sent Captain Best to the Indies with a strong squadron to protect the company's interests, by force if necessary. Best aided the Javans to drive the Dutch out of Bantam, which proved but an empty victory for the British. Twelve English ships and 15 of the Dutch were just about to clash in the Straits of Sunda, when the *Bull*, an English vessel, arrived with news that the two nations had settled their difficulties.

The agreement which had been reached provided for a restitution of ships and property, a division of the trade on the basis of amount of capital invested by each company, and a joint council of defence. Each nation was to provide ten ships of war, not to be used in the carrying trade. The agreement proved entirely unfeasible, and was unsatisfactory to both parties.

The incident which was to promote the most bitter resentment on the part of the English was the so-called "Massacre of Amboyna," in 1623. The Island of Amboyna had come to be an important centre of the spice trade, and here the Dutch had a strong fort and garrison. The English had an undefended factory operated by a group of men, of whom Gabriel Towerson was chief. The Dutch and English had lived side by side for two years, and had shown each other many courtesies. According to the English version, the Dutch obtained from certain Japanese a confession of an English plot to surprise and capture the fort. That the little group of almost unarmed Englishmen should have entertained such ideas is not to be thought of. The Dutch invited the unsuspecting Englishmen to the fort, and there proceeded to inflict the most horrible tortures, until in their agony most of the Englishmen confessed that the plot had existed. All were then executed. ("Ledger and Sword," i, chapter vi; also Purchas, x, pp. 507–522.)

This sad affair forms the basis of the play, *Amboyna*, by John Dryden. This was written in 1672, probably by command, as an aid in stirring up English sentiment in favor of a Dutch war. The author ascribes every virtue to the English, and every sin in the calendar to the Dutch. He makes one of the latter say:

> I wish your whole East India Company
> Were in this room that we might use them thus,
> They should have fires of cloves and cinnamon,
> We would cut down whole groves to honor them,
> And be at cost to burn them nobly.
>
> —JOHN DRYDEN, *Amboyna*, Act V, scene i.

The Dutch had always regarded the islands as the district of profitable trade, and the early efforts of the English likewise had been directed towards establishing themselves in the archipelago. Ten or eleven years after the company's first venture, when they still had only the most precarious footing in a few of the islands, we find the English attempting to locate factories on the coast of India. Several such attempts failed or proved unprofitable.

In 1612, Captain Best arrived with the *Red Dragon* and the *Hoseander* off Swally Road, on the Malabar coast, with the purpose of establishing a factory at Surat. A Portuguese fleet undertook to prevent him. The battle which followed lasted, with intervals of rest, for several days, and was a desperate engagement. The Portuguese finally withdrew. Best's two vessels were not only afloat, but apparently in good condition. Very soon after this the Great Mogul granted permission for the establishment of a factory at Surat. This was the first English foothold on the Malabar coast, and was destined to grow into a great and prosperous factory. ("Ledger and Sword," i, pp. 95–97.)

We are given by one of the company's servants at Surat, late in the seventeenth century, a view of the trade as it was at that time. He says: "The South Sea trade is still maintained to Bantam with such cloth as is vendible there, from thence with dollars to China for sugar, tea, porcelane, laccared ware, quicksilver, and coffee; which with cowreys, little sea-shells, come from Siam and the Philippine Islands; gold and elephants' teeth from Sumatra in exchange for corn. From Persia . . . come drugs and Carminia wool; from Mocha, Cohar or coffee. The inland factories subject to it are Ahmedabad, whence is provided silks, cutlasses; Agra, where they fetch indico (indigo) . . . and fine calicuts (calicoes). Along the coast . . . Calicut, for spice, ambergreez, granats, opium, with saltpeter. . . ." ("Ledger and Sword," i, pp. 381–382.)

We learn from the above that tea and coffee were coming to constitute an important part of the company's wares.

The history of the development of the power of the British East India Company in its relations to the traffic in drugs, spices, and dyestuffs is of the greatest importance, and, furthermore, is alive with interest. Much material is available; volumes might be written. The writer of this paper regrets that lack of time forbids him to devote adequate attention to this as well as to other divisions of the general subject. He cannot close without reference to the intensely interesting material found in the "Court Minutes" of the East India Company which have been available in abstracted form in the "Calendar of State Papers." In the "Court Minutes" are recorded discussions of all of the affairs and interests of the company, ranging all the way from progress of negotiations between James I and the Commissioners of the States of Holland to mention of a complaint of a London merchant that a few sacks of cloves purchased of the company were full of stems and dirt. Only a few scores of interesting items can be mentioned.

October 3, 1615.—"Mr. Lutterford accused of mingling dust and other trumperies amongst the pepper that he had from the Company; excuses himself that he had done the like before and promises to have it screened at Naples where it is to be sold, but they held it to be a great deceipt, wrong, and scandal to the Company, disgrace, discredit, and disparagement to this nation, and to maintain the honour of the Kingdom and Company resolved to have a warrant procured to make a stay of it all." ("Calendar of State Papers," Colonial, East Indies, 1513–1616, p. 431.)

January 8, 1610.—" . . . the youth, an apothecary, skilful in distillation

and commended by Lord Carew, to go as surgeon's mate's mate." ("Calendar of State Papers," Colonial, East Indies, 1513–1616, p. 202.)

December 10, 1614.—"Capt. Castleton to be entertained, (retained or hired) the duties he will have to perform; trial to be made of sundry of his proposals, including the baking of fresh bread at sea, with the grinding of corn an exercise fit to preserve men in health . . . distilling fresh water by having stills fitted to the furnaces, carrying a hogshead of fresh provisions to be used only in cases of necessity. . . . Offer of Dr. Burgis to present the Company with an antidote against poison, scurvy and other diseases with which people are subject these long voyages. . . ." ("Calendar of State Papers," Colonial, East Indies, 1513–1616, p. 353.)

November 26, 1621.—" . . . The spices given towards Christide unto any great men, honourable benefactors to this Company or to any others as in former times, not to be given this year by reason of the great damages the Company have sustained, not doubting but all that know the same will take none offence thereat." ("Calendar of State Papers," Colonial, East Indies, 1617–1621, pp. 1491–1492.)

March 5, 1619.—"Virginia wheat, called maize, much commended for an excellent strong meat and hearty for men at sea, and more wholesome than beef; the Virginia Company to be desired to procure some for trial by the next shipping." ("Calendar of State Papers," Colonial, East Indies, 1617–1621, p. 255.)

CONCLUSION.

Professor Walter Raleigh, of Oxford, in his essay on "English Voyagers," says: "Men have travelled as they have lived, for religion, wealth, knowledge, pleasure, power, and overthrow of rivals." In the imperfect picture which has been presented of the struggles of four nations to roll back the clouds from the unknown parts of the world, we have seen evidences of each one of the motives enumerated by Raleigh. In the cases of many of the individual actors in the world-drama, as well as of the nations themselves, an analysis of motives is very difficult. However, running all through the story we have found the same "odor of far-fetched spices," and we can safely say that had it not been for the desire for spices and drugs, and for the rich profits to be gained by a control of the supply of these, the Age of Discovery would not have come when it did.

Spices and drugs have not lost their importance as the centuries have passed. The same pepper and cinnamon, cloves and nutmegs, that made up the bulk of the cargoes of Portuguese, Dutch, and English vessels in the seventeenth century, are still counted among the important products of the Asiatic coasts and islands. They are no longer obtained to any considerable extent by barter with natives, but are produced under cultivation on great plantations in the Dutch and British East Indies. Their culture has been most carefully studied and highly systematized. No longer do the carracks and galeots spend from six to nine months in the long Cape voyages; but speedy steamers, travelling by way of the Suez Canal, make the trip between Batavia and Amsterdam, or between Singapore and London, in a few weeks at the farthest.

This narration may have served to call to our attention that these products of the East which to-day seem so commonplace have each its story; a story written in the blood of half a dozen European nations, as well as that of countless Asiatic tribes and peoples. It is well that we should think occasionally of the little vessels, hardly as large as our fishing schooners, finding their way across trackless oceans; that we should recall the mariners on those little ships, living

sometimes for weeks on putrid penguins and foul bilge-water; that we should try to imagine the suffering of a ship's crew stricken with scurvy, bloated limbs, swollen gums, teeth dropping out; that we should think of a little group of factors on some remote island, succumbing one by one to tropical dysentery, and wondering whether any would be left alive when the company's vessel returned after its long absence. It is even well that we should bring to mind the fights which often raged for hours on tropical seas; when sailors stripped to the waist served the double-shotted guns until yard-arm touched yard-arm, and then grasped cutlass or pike to board or repel boarders. They fought because of various hatreds—racial, religious, and what not; but the immediate prize to be contended for was a cargo of spices; and among the crew of the victor, perhaps one-sixth of the value of the prize would be divided. Under whatever flag they fought, whether they died in battle, by shipwreck, or from fever, or whether they lived to return crippled and diseased to a home port, there to drag out a miserable old age, the world of to-day is indebted to those seamen.

Tschirch has said that for Pharmacognosy the Age of Discovery was not a renaissance, but the beginning of an entirely new era. Where before men had known the bark, the seed, or the wood, having only the vaguest conception of the plant from which obtained, competent observers now studied the growing plants. Garcia da Orta, Linschoten, and other scientific men during the sixteenth century made accurate observations and recorded what they had seen. Manners of adulteration were studied and information provided which was of great aid in protecting against fraud. As for the active principles of the drugs, these were for the most part to remain unknown until a much later period. Until organic chemistry had developed no intelligent investigations could be made. The volatile oils, alkaloids, and glucosides we are even now only beginning to understand.

The exploration of the East Indies resulted in bringing to the knowledge of Europeans a number of drugs which before were unknown. Among those introduced into Europe during the sixteenth and seventeenth centuries we note: star anise, areca, gamboge, catechu, calumba, and nux vomica. Probably few Asiatic plant products would to-day be considered more important than tea, which first reached England in commercial quantities in 1669. Kino, Indian cannabis, chirata, gambier, and oil of cajuput apparently did not reach Europe until later than the seventeenth century.

We may believe that even yet additions will be made to our materia medica from among the products of the Indies. From "Pharmacographia Indica" and other sources we learn of many Asiatic drugs as yet little known in Europe and America. Doubtless, upon investigation, a number of these will prove to be valuable and important.

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THE COMPOSITION OF A ROMAN OINTMENT.

A Roman amphora has been found in the course of the excavations at Lugano containing a fairly soft unctuous substance with the odor of storax and turpentine. The author has been able to identify this with certainty as being a cosmetic ointment. It was found to have contained beeswax, some animal fat, turpentine, oleoresin, storax, and henna. All these were still detectable by the use of appropriate solvents and reagents. Doubtless it was the toilet cream of a fashionable Roman lady.—L. Reuter (*Comptes rend.*, 1916, 162, 471).

WOMEN'S SECTION, AMERICAN PHARMACEUTICAL ASSOCIATION.

WOMAN IN HOSPITAL PHARMACY.*

MISS BERTHA OTT.

Some one has said that this is the woman's century. That is true; and as we are just in the hallway of the twentieth century, so are we now only on the outer edge of one of the greatest movements the world has ever seen,—the coming of woman into her own.

No one can deny that wherever women have entered they have not only in the majority of cases made a personal success, but have elevated the realm which their presence has graced, and have frequently been leaders whose guidance man is compelled to follow.

The name of woman has been written on the scroll of fame, side by side with her male prototype, in painting, sculpture, music, architecture, astronomy, chemistry, medicine, dentistry, pharmacy, nursing, and every other calling.

The fact that they have succeeded, at least equally with the men, is indisputable. But let us not honor merely those who have obtained eminence, but also the plodders in the ranks, the great body of the ranks and files in these various callings.

The question which concerns us in this paper is woman's place in the profession of pharmacy, more intimately in institutional pharmacy. In every country and civilization, no matter how ancient, we find historical facts of medical schools, hospitals and pharmacies, many of them showing wonderful developments, most of them having employed women as physicians and pharmacists. We may mention the fully developed college of physicians in Egypt in the eleventh century B.C., which permitted women to practise there. Medical women were found even in the comparatively unknown kingdom of Siam. Here still exists the oldest hospital for women of which we have any knowledge. It is in Bangkok, the capital of Siam. Bancroft, in his "Native Races of the Pacific States of North America," affirms that in all the larger Mexican cities, hospitals were established by the government; endowed with ample revenue; attended by experienced physicians and nurses; that the Mexicans had studied and practised medicine from ancient times; that they possessed botanic gardens and suitable places and arrangements for dissection, and that women physicians were common among them.

The oldest hospital in the new world is the "Hospital Jesus Nazerina" in the city of Mexico. It was founded by Cortez in 1524 and is still conducted as a hospital, largely with an endowment left by the great conqueror in his will.

The oldest hospital in the world that is still conducted as a hospital is the famous "Hotel Dieu," said to have been built by Laudry, Bishop of Paris, about 660 A.D. Schelenz, in his "History of Pharmacy," in reference to Hotel Dieu, says: "Sisters occupied positions in the drug-room and sold remedies specially prepared in their hospital pharmacy, which was as well equipped as any pharmacy in Paris."

It is strange that the eminent position of women in medicine declined slowly

* Read before Women's Section A. Ph. A., San Francisco meeting.

after the twelfth century, and practically disappeared after the sixteenth century, to be almost forgotten until the nineteenth century. The new opportunity for women did not arise until the middle of the nineteenth century.

> "It is the woman's century. The cry goes forth,
> With standard raised in bright, majestic pride
> To womanhood, whose pure intrinsic worth
> Is now revealed unto a waiting world."

We deem it proper at this moment to pay tribute to the first registered woman pharmacist engaged in hospital pharmacy in our land, namely Dr. Susan Hayhurst. Dr. Hayhurst came of an old Quaker family and was born in 1820 in Attleboro, Bucks County, Pennsylvania. After graduation from the local Friends' School, she went to Philadelphia, where for a time she taught school, later entering the Women's Medical College, by which she was graduated in 1857. While attending physician at the Women's Hospital, she became interested in pharmacy and decided to enter the Philadelphia College of Pharmacy, graduating in 1883; she was the first woman to receive a degree from that institution. She served as pharmacist at the Women's Hospital for thirty-three years. Being a born teacher, she utilized her knowledge and wide experience by employing young women as assistants who were unable to secure positions to gain practical experience in pharmacy. It is said that she gave instructions and aid to sixty-five young women. This shows that Dr. Hayhurst had the right spirit of coöperation with her sister workers of her profession. During the Civil War she was chairman of the Committee of Supplies of the Pennsylvania Relief Association. She was an enthusiastic floriculturist, a leading figure in the work for women's welfare, and a member of the Pennsylvania Pharmaceutical Association. She died August 7, 1909—famous for her good works and loved and honored by all those who knew her. A fine oil portrait of her adorns the walls of the Museum of the Philadelphia College of Pharmacy, placed there through the efforts of the present pharmacist of the Women's Hospital in Philadelphia.

There are about 7000 hospitals and similar institutions in the United States,—to our knowledge only a small percent of them employ pharmacists. How great the field for professional workers of our ranks!

Every open hospital of fifty beds will have sufficient prescription work to employ a progressive pharmacist, one who has the profession at heart and whose sympathy for mankind will further her interest in the advancement of her institution. The modern hospital offers the pharmacist every opportunity in "true" pharmacy, every convenience regarding facilities and necessary supplies for manufacturing and testing of pharmaceutical and clinical preparations will be granted. The hospital connected with a medical school offers great opportunities for those who are interested in scientific and research work.

We dare say, unless conditions are soon remedied in general pharmacy, hospital pharmacy will rank first in upholding the ethical side of our profession. The hospital, conducting a training school for nurses, in most cases offers the pharmacist the privilege of demonstrating her knowledge in materia medica, chemistry, etc., by instructing a class of nurses in said branches, and thus be the means of inspiring others for our noble profession.

As the work in the hospital may generally be arranged very systematically, the pharmacist may find ample time for study and reading the pharmaceutical literature, and every up-to-date hospital will be provided with a most interesting library which will be at her disposal. For recreation she may, if hospital grounds permit,

cultivate medicinal plants, such as are indigenous or may be naturalized in our country. This will benefit the teacher and pupil nurses of the Materia Medica class. To a great extent she may observe the Sabbath as a day of rest and will not be denied the privilege of following her religious inclinations. She may be a member of some organization of her chosen profession.

We are happy to know Providence put it into the hearts and minds of the organizers of the Women's Section of the American Pharmaceutical Association to grant us the privilege of becoming a factor in this great and noble organization, and bringing those active in institutional pharmacy in closer touch with each other.

In return we offer our service and interest to the progress and development of the organization in all its branches, to encourage women pharmacists to enter hospital pharmacy and join the eminent A.Ph.A.W.S. Loud may it sound the bugle call for more professional workers in our field. Hark! we hear it now—

Behold the dawn! The darkness flees!
Bright rays of light are shimmering on flowers and trees.
All gone the gloomy shadows, all full of life and light
Is nature after passing through the mysteries of the night.
But hark! dost hear the martial melody
That, like the heedless breakers of the sea,
Comes dashing toward us on the morning breeze?
'Tis the Bugle Call! The Bugle Call!

What means this call, this call that thrills
The very heart when deep the soul it fills?
'Tis the call for action, no longer delay.
Awake! awake! 'tis the dawning of day!
Away with all hesitancy, doubts and fears
That have kept our women pharmacists for years and years
From coming into their own!
Hear the Bugle Call! The Bugle Call!

Come forth, ye brave hearts and leave behind
The counter, trifling things that all your aspirations bind.
A college graduate, versed in Medico's lore,
Has a higher calling than selling toilet articles by the score.
Of more hospital pharmacists have we need
Who can apply their knowledge in worthy deed,
And reign supreme in the realm they love—
Heed the Bugle Call! The Bugle Call!

What are the tasks that to us fall
As hospital pharmacists if we heed the call?
Besides the prescription work, there are nurses bright to teach.
One can be a living example to those we hope to reach.
There is laboratory study and research work to do.
Be a member of the A. Ph. A. W. S.,—and an active member, too.
Come, then, seek your place in hospital pharmacy, and
Help raise its standard to the best in the land.
Heed the Bugle Call! The Bugle Call!

(H. R.)

NOTE.—Miss Hannah Reiswitz, who is connected with the social service work of Bethesda Hospital, should have credit for the poem.

B. O.

SECTION ON COMMERCIAL INTERESTS, AMERICAN PHARMACEUTICAL ASSOCIATION

SOME SOURCES OF PROFIT AS APPLIED TO RETAIL PHARMACY.*

BY A. S. PARKER.

Profit in business may be materially influenced by failure to take into account the small items of expense; and further by conserving material that ordinarily finds its way to the waste; by failure to appreciate what constitutes a proper mark-up; by a lack of careful supervision of sales and also by other causes which I may touch upon in a hit-or-miss manner.

There are many large mercantile houses whose net profits are derived entirely from their cash discounts. To allow anything of value to become waste would not be permitted by some of our most successful concerns. Careful observation has shown that many business men—so called—regard small savings as trivial and beneath them.

To refer to some of the items of expense: bills for gas, electric lights, coal and ice, in stores operating under same conditions, seem to vary in proportion to the supervision given. The question whether these items are being used in excess of requirements does not occur to some, while others will secure equal results with less outlay. Large consumers of these commodities frequently spend large amounts of money in order to secure greater efficiency, thus effecting a small economy when reckoned by a single month.

The matter of repairs may become impressive—destruction of appliances which under ordinary treatment should be practically indestructible; the burning out of the furnace grate; the destruction of hose due to indifference and harsh treatment; a small rent in the store awning which after a brief interview with a high wind may require a patch about the size of a ten-dollar bill, or possibly a new awning—those are among the drains on the bank account and which under a thrifty management would not occur.

I have seen stores that were continually buying spatulas, pestles and weights. Did it ever occur to them that the spatulas could be ground down and the pestles reset? Oh, no, it is too small a matter to bother with. Such trifling economies should be left to such concerns as the Standard Oil Company, who consider no reasonable economy beneath their notice.

Drug store conservation should mean the conversion of all material of value into cash. Waste paper may represent considerable value, likewise packing cases and old bottles, besides getting rid of these things for which there never seems to be *a good place*.

As illustrating how small wastes may become an avalanche, the following circumstance seems worth relating: A certain large grocery store became convinced that their profits were inadequate, and instituted a thorough investigation. By carefully reweighing all packages and checking material used, it was estimated that the losses incurred from overweight and from the excessive use of string and paper bags amounted to about four hundred dollars per month.

A large corporation called the attention of one of its branch managers to

* Read before Section on Commercial Interests, A. Ph. A., San Francisco meeting.

what appeared to be an excessive use of wooden bungs and sent an expert to ascertain why so much solder was used in the manufacture of tin cans.

So it is plain that in the matter of painstaking oversight and the practice of small economies on the part of our great corporations, precedent is not wanting.

Losses are incurred from the indifference of clerks who have little knowledge of values; the tendency being undercharge. There is also considerable loss from the making of small sales instead of large. Why should not the suggestion be made to a customer of a twenty-cent bottle of glycerin instead of a ten; a ten-cent package of absorbent cotton instead of a five, or a ten-cent, or better, cake of soap? The writer has in mind a store that sells twenty-five-cent tooth brushes instead of fifty-cent ones.

Referring again to lack of knowledge of market values, the writer some time ago called up several stores on the 'phone and asked the price of goldenseal root. The prices ranged from five to thirty cents per ounce; the drug at the time being quoted at $2.75 per pound. The writer has frequently seen a druggist quoting prices from a manufacturer's price list that was one or more years old.

Depreciation of merchandise either from deterioration or from becoming obsolete is a prolific source of loss. During the past few years a great many old-time pharmaceutical favorites have been converted into junk and should be treated as such. The present-day physician is not a prescriber of drugs to any great extent, so rid yourself of the dead ones and straightway forget it.

Many salesmen seem to follow the lines of least resistance and sell from the top, with the result that articles on the bottom become stale or shopworn.

Too great an intimacy between the edible and smokable merchandise of the store and the employees results in loss.

Dead stock may reach a large figure while slow-moving merchandise rarely returns a satisfactory profit. Don't be caught by the free goods bait. Drug store bargain counters are not a success.

The lack of knowing just what constitutes a proper mark-up carries with it diminished profit. This cannot of course be considered in connection with those lines whose selling price is fixed; but how can a druggist, who has no knowledge of what his selling expense is, be expected to intelligently base his selling price or even intelligently buy?

Given the selling expense, the pharmacist should endeavor to secure a net profit of not less than fifteen percent. In order to do this he should tell the manufacturer of toilet goods, confectionery, etc., who comes to him with a proposition of twenty-five to thirty-three and one-third percent gross, to please not consume his valuable time. Owing to the increased expense of doing business, the pharmacist must increase his gross profit, which should be at least forty percent on toilet articles and confectionery, while other lines must carry more.

Perhaps the greatest loss that accrues is from the automatic clerk—the nickel-in-the-slot sort of salesman who, upon the tender of, say twenty cents, hands the customer the twenty-five-cent article asked for and with a "thank you, anything else?" rings up the sale.

There was a psychological moment when the customer's attention could have been directed to an article of equal or superior merit without being impertinent. Such a proceeding is a salesman's license that is universally recognized. By the way, such men are not in the employ of the great retail stores. Ask yourself the question: "Am I paying out my good money for salesmen or automatons?"

As a check upon the operations of employees, all sales should be entered in a duplicating salesbook, such as are commonly used in the large stores. Such a book

supplies a much-needed record of the operations of employees and enables one to check up their sales, prices, etc.

The successful pharmacist is generally one who is master of details. He recognizes the value of the advertising to be gotten from a well-conducted and attractive store. A well-kept pharmacy is attractive to the public; they like to visit them—seemingly enjoying the surroundings. We can all of us call to mind pharmacies of this sort. The store reflects the man, and the man, by virtue of his character and ability, his methods, becomes the exception and he creates without cost a business asset—an asset measurable in dollars and cents.

If we shall set for ourselves the task of searching out the avenues of profit for the pharmacist, we shall find them to be many and in so doing we may create a professional business man, and thus give an affirmative answer to the oft-repeated question: "Can pharmacists be successful tradesmen?"

ABSTRACT OF DISCUSSIONS.

MR. TROXLER: I think Mr. Parker overlooked one saving in the drug business, and that is the discounting of the bills.

MR. LACKENBACH: The proprietor of a business establishment may have some very well defined ideas as to economics. The difficulty is in inculcating those ideas into his employees. Very often the employees are more or less raw material, who have not had the advantages of proper training at home to begin with—training in neatness, orderliness and cleanliness, and the person in charge of a business can devote a very large proportion of his time to calling the attention of his subordinates to leaks, losses and disorderliness. That is a very difficult matter for a busy man, a man in charge of an active enterprise. That is probably where the losses come in—through the inability of the director of affairs to give very much of his personal attention to those small losses.

In the saving of paper, for example, it takes a good deal of time to call the attention of the shipping clerk to the paper and twine that come in. The shipping clerk gets careless, in other words, and if you have to remind him every time it comes to your attention that he could save that piece of paper——. In the first place, it takes up a good deal of room and accumulates, and it takes time to hunt out just the right piece of paper to do up a parcel. It takes much less time to draw on the large roll of heavy paper, and very often what is seemingly a saving is a direct loss in time and efficiency.

MR. HAMNER: In the section on salesmanship, Mr. Parker spoke of suggestiveness, and selling a better and higher priced article. I do not recall in this city of making a purchase when the salesman suggested something which was in line with the purchase already made. We find that in dry goods. When a man buys a shirt, it is natural to suggest a necktie or a collar. In pharmacy, on the average drug store purchase, a tooth brush should be followed up with a special paste or powder. The purchase of paper for stationery calls for a line of envelopes to match. It seems to me a valuable point and one which will increase sales to the purchaser instead of the perfunctory question, "Is there anything else?"

MR. FLETCHER: That was one of the things that came up yesterday in reading another paper. Mr. Weed brought out the arrangement of a drug store having certain departments close together on account of the allied interests for selling other merchandise than that called for. The principal teaching of the Owl Drug Company at the present time to their salesmen is what they term the running-mate system—to sell the article called for by the customer, give him what is wanted and what is called for, but at the same time to sell him a running-mate—with the tooth-powder the tooth brush, with the hair brush a comb or a preparation; if it is a shaving brush that is asked for find out if he has got plenty of shaving soap or razor blades; in fact, anything that may be termed a running-mate.

They quiz salesmen of the concern continually on running-mates. Very often we get a sheet or two of foolscap with a number of items on it, with blank space alongside of them, and are asked to suggest running-mates for each item, and to bring that paper to the next meeting of salesmen. If you have anything unusual in the way of a running-mate, some-

thing that the majority have not suggested, you are called on to defend your reason for suggesting that for a running-mate.

I spoke of one instance yesterday in which a man suggested and carried the sale through on a twenty-five-cent bottle of witch hazel—sold a vibrator for $17. That is almost extreme, but it shows the plan on which they work. They sell the goods or hand over the goods that are asked for and never make a substitution in that way—anything to bring back and make a constant customer of the man who comes in; but a man's ability is gauged by the number of sales he makes. A man who continually sells one item and sells one item only is not rated as a good salesman. The man who has two or more articles on his check is rated as better, and the more double sales a man makes, the better he is rated.

A PLAIN TALK ON BUSINESS METHODS.*

BY B. E. PRITCHARD.

In the preparation of this paper there is no intention of handing down a line of advice; my only reason for attempting to write it is to present truths that an experience covering more than forty years behind the counter and at the prescription case has taught me.

If memory serves me aright, it was one of our own living beacon lights, Dr. William C. Alpers, who in one of his many valuable contributions to the literature of pharmacy said something like this: "As we try to move forward in the busy streets of the city we often find that those who get in our pathway and block our progress are men who are moving in the same direction as ourselves, but who seem to have no objective point, and by their loitering movements retard those back of them who have."

What an excellent picture is here presented! Men who ought to be depended upon to help improve the business or profession in which they engaged are often the most serious handicaps we have to overcome—the sprags that interfere with the forward movement of the cause which we hold so dear, and to the elevation and improvement of which we have devoted the best years of our life.

Any man who has ever undertaken to work for the passage of legislation, which has been submitted for the purpose of putting the practice of pharmacy upon the high level it should occupy, has learned to his sorrow and bitter disappointment that he has been trammelled and retarded, and in nearly every instance defeated, by the opposition of men engaged in conducting alleged drug stores.

For sixty-three years the American Pharmaceutical Association has been striving to reach this goal, yet to-day that which it has sought to accomplish seems to be still a mirage, the sight of which encourages faithful men in the ranks to persevere in the good work, hoping that some bright day their labors will bear fruit for the benefit of those who shall come after them. Do not lose heart, brethren; during almost two thousand years the gospel has been preached to all nations, and in every tongue, and yet there are several millions still unconverted. The same condition which faces us, faces Christianity—men who have been leaders, men who have preached the doctrines of Christianity to others, have themselves become stumbling blocks to those to whom they have preached; and yet, how many are ready to declare that the Christian religion has failed in its mission? As the world has been made better, and still better, by the good work of faithful Christian men who have given of their best to make it so, so has the practice of pharmacy been improved and will continue to improve so long as there shall remain workers in our ranks who are faithful to their trust—men who will continue to hold to their ideals and preach them to their fellows.

* Presented before Section on Commercial Interests, A. Ph. A., San Francisco meeting.

The trouble with us fellows who try to point the way by looking backward is the same as a motorist who puts the headlight on the rear of his car where it will only serve to blind those who come after him instead of lighting up the roadway and showing them the spots to avoid.

When we succeed in eliminating from the drug business all those who are concerned only in making their investments pay dividends, without regard to the character of the business done, we will have made a long stride in advance, and will have removed some of the sore spots on pharmacy that cause men to look with dubious eyes and regard the keeping of a drug store as a mere cloak to cover sinful transactions—often a disguise for a bar-room. Then, too, there are men who, under the guise of drug stores, conduct places where so-called patent medicines, worthless fakes and questionable articles are exploited at demoralizing prices, without any responsibility on the part of the owners either as to safety in quality or honesty in representations; and the pharmacy laws of most states do not hold these men amenable to their provisions—do not restrict ownership of drug stores to men qualified to practise pharmacy. They, almost invariably, annul to a great extent their own purpose by the use of some phrase, such, for instance, as this, which is taken from the pharmacy law of my own state, Pennsylvania: "Nor shall it interfere with the making and dealing in proprietary remedies, popularly called patent medicines, nor prevent storekeepers from dealing in and selling the commonly used medicines and poisons."

It is generally conceded that patent medicines should be given no recognition in pharmacy; that their sale should be discouraged, and their indiscriminate use by the public frowned upon. At the 1915 meeting of the Pennsylvania Pharmaceutical Association, during the discussion of a proposed venders' license law, a case was cited as "an awful example." It was shown that a certain patent medicine had been mixed in a bath-tub in a hotel and later hawked upon the city streets. During this discussion one of our most valuable members with difficulty restrained himself and held his peace, and, as he expressed himself to me later, this is what he had in mind: "We men who are here condemning this particular act on the part of one man as an awful example are guilty of freely handing over to our friends and patrons every hour in the day, stuff of a similar character, concerning the antecedents of which we know nothing, and of the contents of which we are absolutely ignorant, much of which have been thrown together under just as vile, or even worse, conditions than the one cited. What right have we to cast stones at others when we cannot come into court ourselves with clean hands?"

There has been under way for some time, under the auspices of the National Association of Retail Druggists, a movement known as the "Propaganda for Reform" in prescription writing, by the exploiting of U.S.P. and N.F. preparations. This is a righteous campaign deserving of wider application than is being given it.

But along comes the Harrison Narcotic Law, with its numerous regulations, one of the latter, Treasury Decision 2172, covering the provision for exemptions, which places proprietary preparations and remedies on exactly the same level as U.S.P. and N.F. preparations: "Prescriptions written by registered physicians calling for any quantity of the narcotic drug unless such prescription is written for a preparation or remedy prepared in accordance with the United States Pharmacopœia or National Formulary, or other formula, or private or proprietary formula, carried in stock by a dealer which may be dispensed without a prescription."

There you see that the Commissioner of Internal Revenue, with the sanction of the Treasurer of the United States, tells us, in effect, that there exists no difference

in their opinion between the vilest ready-made patent medicines, without reference to how or by whom, and the official preparations made in accord with the provisions of the recognized standards that have undergone the tests laid down by the highest authority on the subject in the world (1915).

To this, Mr. J. W. England, Secretary of the Council of the American Pharmaceutical Association, in a paper read before the Pennsylvania Pharmaceutical Association, makes this objection: "This decision is open to serious question, and the Treasury Department has erred in making such a decision, whereby the medical profession is discriminated against in favor of ready-made preparations and remedies, and that an unnecessary burden is thereby imposed upon the physician and pharmacist without resultant advantage."

It is the duty of every man to do his utmost to foster and protect the good name of his chosen calling, and hence every clean druggist should, whenever opportunity presents itself, protest against the ignorantly constructed legislation that is constantly being urged to regulate pharmacy, while at the same time he should be just as zealous in striving to secure proper legislation when an organized effort is being made to secure it. Dr. J. H. Beal tells us in the Midland Druggist that "The American public is a fair-minded jury but it must base its conclusions on the evidence and arguments submitted. If we do not deny or protest against the sensational stories of druggists' faults and crimes, we have no right to reproach the jury for accepting the alleged facts as true."

In the effort the Fair Trade League is making to secure relief from unfair competition, every right-minded druggist should lend a hand by directing the attention of his congressman to the Stevens Bill. The Fair Trade League has gone into court with a clear-cut, formal complaint that will bring the practice squarely before the Federal Trade Commission, the decision of which is expected to settle the question of the legitimacy of under-selling campaigns.

I trust that every member of the American Pharmaceutical Association who listens to the reading of this paper, as well as those who may read it later, will accept it as an appeal not to sit down with folded hands and wait for the other fellow to take action, for just as surely as he does, there will be no good thing accomplished. You are "the other fellow" to your neighbor, and if he depends upon you and you depend upon him, it stands to reason that it simply won't be done. Wake up! and let the people know you are on earth!

That the learned judges of the courts are beginning to see a new light upon this iniquitous method of merchandising is made apparent by reading this statement made by Judge Hough of the Federal Court at New York quite recently in the course of a decision handed down in a case in which a price demoralizer was complaining that his supply of a certain article was being cut off and asking an injunction against the manufacturer; the court said: "If injunction were granted, defendant and many retailers would be injured, and the microscopic benefit to a small portion of the public would last only until the plaintiff was relieved from the competition of the fourteen-cent grocers, when it, too, would charge what the business would normally bear. In short, it is the plaintiff and not the defendant who pursues methods whose hardship and injustice have often been judiciously commented upon. In my judgment, the prevention or limitation of practices such as plaintiff's (so far as consistent with statute laws) is the reverse of unreasonable."

All that seems to be needed now is for every honest merchant to set his face toward doing his part, and keep his own hands clean by avoiding complicity in any of the nefarious schemes that are being constantly brought forward to demoralize straight business methods. It is strict attention to the needs of your customers, and quality of service that bring and hold trade.

CONTRIBUTED AND SELECTED

SENSITIVITY OF SOME COMMERCIAL LITMUS PAPERS.*

BY ARNO VIEHOEVER AND CARL O. EWING.

During the course of some experiments with drug plant extracts it was found that the different litmus papers on hand did not respond satisfactorily when solutions known to contain an excess of acid or alkali were tested. Since litmus is so often used in testing the reaction of solutions, and, furthermore, since it is prescribed frequently in pharmacopœial tests, it seemed advisable to examine the litmus papers on the market in order to determine their sensitivity. Samples of blue, neutral, and red litmus papers were therefore requested from seventeen American commercial firms which were considered most likely to make their own litmus papers. Nine of these firms submitted original samples. One sample obtained from a foreign firm was also examined. Another paper of foreign make, dyed only on one side and considered to be very sensitive, could not be obtained for comparison.

Some samples received were loose in envelopes, some were in unprotected booklets, some were in colorless bottles, and some in amber-colored bottles. The paper strips were removed from the original containers with forceps (to avoid contact with the hand) and tested by momentarily immersing one end in acid (H_2SO_4) and alkaline (NaOH) solutions of the following concentrations: $\frac{N}{10}$, $\frac{N}{50}$, $\frac{N}{100}$, $\frac{N}{250}$, $\frac{N}{500}$, $\frac{N}{1000}$, $\frac{N}{2000}$, $\frac{N}{4000}$, and $\frac{N}{6000}$. In doubtful cases one end was dipped into distilled water.

The reaction of the distilled water used in all of the experiments was very close to absolute neutrality, as near as could be determined by the use of the indicators azolitmin, methyl orange, methyl red, and phenolphthalein. (A chart showing the relative position of these indicators on the hydrogen ion scale is given by Walpole.[1])

The results, which are very surprising, are given in the table, the papers of each type being arranged in the decreasing order of their sensitivity.

As can be seen by the table, there was considerable difference in the colors of the papers submitted. The differences may be partially accounted for by the fact that litmus is prepared from several different lichens, chiefly species of *Roccella, Lecanora,* and *Variolaria.* The conditions under which the fermentation of the lichens is carried on in the manufacture of the litmus also must have considerable influence. Different amounts of litmus dye used by different manufacturers will naturally cause differences in the shade and color intensity of the papers. Of other dyes added to litmus as an adulterant, only indigo has been mentioned in the literature.[2] According to Kunz-Krause,[3] indigo is a never-failing constituent of litmus. We believe that if it is present, it can be so only in very small amounts, and that its addition as an adulterant seems improbable at the present time in the light of a few experiments made with indigo solutions alone, in concentrations varying from 1 : 100 to 1 : 50000, and mixed with litmus solutions. The indigo

* Contribution from the Pharmacognosy Laboratory, Bureau of Chemistry, U. S. Department of Agriculture, Washington, D. C. Read before the Biological Section of the American Chemical Society, Urbana, Ill., April 22, 1916.

[1] Walpole: "Notes on Regulator Mixtures, Recent Indicators, etc." Biochem. J., 8, 628–640, 1914.

[2] Zörnig: Die Arzneidrogen II, 370–371, 1911.

[3] Hager's Handbuch der pharmaceutischen Praxis, Ergänzungsband, 442, 1908.

RELATIVE SENSITIVITY OF SOME COMMERCIAL LITMUS PAPERS.

	Lab. No.	Original color.*	Acid.									Alkali.								Remarks.
			N/10	N/50	N/100	N/250	N/500	N/1000	N/2000	N/4000	N/6000	Distilled water †	N/2000	N/1000	N/500	N/250	N/100	N/50	N/10	
Blue	F	Light plumbago gray	5‡	4	4	3	3	2	2	1−	0+	0	...	...	...	...	...	..	..	Excellent. Sharp color change.
	K	Light vinaceous gray	5	4	4	3	3	2	2−	1−	0+	0	...	...	...	...	...	..	..	Excellent. Sharp color change.
	D	Grayish blue violet	4	3	3	3	2	2	1−	0	...	0	...	...	...	...	...	..	..	Very good. Quick color change.
	I	Deep plumbago gray	4	3	3	3	2	1	1−	0	...	0	...	...	...	...	...	..	..	Very good.
	H	Deep plumbago blue	4	3	3	2	2	1	1−	0	...	0	...	...	...	...	...	..	..	Fair.
	E	Forget-me-not blue	3	3	3	2	1	1−	0	...	...	0	...	...	...	...	...	..	..	Fair.
	C	.....	3	3	3	2	1	1−	0	...	...	0	...	...	...	...	...	..	..	Fair.
	B	Vinaceous gray	3	2	2	1	1	1−	0	...	...	0	...	...	...	...	...	..	..	Poor.
	G	Aniline lilac	3	2	2	1	1−	0	...	...	...	0	...	...	...	...	...	..	..	Very poor.
	A	Deep dull lavender	3	2	2	1	1−	0	...	...	...	0	...	...	...	...	...	..	..	Very poor.
Neutral	D	Heliotrope gray	4	3	3	2	2	1−	0+	0	...	0	...	0	1−	1	2	3	4	Very good, especially for acids.
	H	Light pinkish lilac	3	3	2	2	0+	0	...	...	...	0	0	0+	1−	2	3	3	3	Very good,
	E	Deep dull lavender	3	2	2	1−	0+	0	...	...	...	0	0	0+	1−	1	2	2	3	Fairly good.
	G	Pale lobelia violet	1	1	1−	1−	0+	0	...	...	...	0	0	1−	1−	2	2	2	3	Fair for alkali. Color change not intense for acids.
	C	Pale purplish vinaceous	1	1	1−	1−	0+	0	...	...	...	0	0	0+	1−	1−	1−	2	2	Poor, color change not distinct. Better for alkali.
	B	Light purplish vinaceous	1	1	1−	0	...	...	...	...	...	0	...	0	0+	0+	1−	2	2	Poor, color change too weak.
	A	Light brownish vinaceous	2	1	0	...	...	...	...	...	...	0	...	...	...	0	1	1	2	Very poor.
Red	F	Hydrangea pink	..	..	...	...	...	...	...	...	...	0	0	0+	1	2	3	4	5	Excellent. Sharp color change.
	K	Venetian pink	..	..	...	...	...	...	...	...	...	0	0	0+	1	2	3	4	5	Excellent. Sharp color change.
	H	Corinthian pink	..	..	...	...	...	...	...	...	...	0	...	0	0+	1	2	3	4	Good.
	D	Pinkish vinaceous	..	..	...	...	...	...	...	...	...	0	...	0	0+	1	2	3	4	Fair.
	C	Hydrangea pink	..	..	...	...	...	...	...	...	...	0	...	...	0	1	2	2	3	Rather poor.
	I	Brownish vinaceous	..	..	...	...	...	...	...	...	...	0	...	...	0	1	1	2	3	Rather poor.
	B	Pale vinaceous	..	..	...	...	...	...	...	...	...	0	...	...	0	1−	1	2	3	Poor. Color change not intense.
	E	Chatenay pink	..	..	...	...	...	...	...	...	...	0	...	...	0	0+	1	2	3	Poor. Original color good, but change not intense.
	A	Hydrangea pink	..	..	...	...	...	...	...	...	...	0	...	...	0	1−	1	2	3	Poor.
	G	Pale vinaceous pink	..	..	...	...	...	...	...	...	...	0	...	...	...	0	0+	1	1	Very poor.

* Color Standards and Nomenclature (1912). Ridgway.
† Reaction close to absolute neutrality.
‡ The figures do not represent exact ratios, but roughly indicate the relative intensity and speed of the color changes.

solutions alone did not change appreciably in color upon the addition of 5 N acid (H_2SO_4) or alkali (NaOH). When indigo and litmus solutions were mixed the color change of the latter was obscured.

We have been informed by a member of the trade that the medical profession demands deeply colored papers, apparently in the belief that they are more sensitive. It was found, however, that the lighter colored papers gave more speedy and more readily observable color changes than the more deeply colored ones. Walpole [4] suggests that the lesser sensitivity of thick, deeply-colored papers is due to "reaction inertia," the larger amount of dye present requiring a larger concentration of acid or alkali to produce a color change.

It will be noted that there was considerable variation even in testing the comparatively strong solutions $\frac{N}{10}$ to $\frac{N}{250}$. The most striking differences were observed in the more dilute solutions. On the whole, the blue papers were the best submitted, the limits of sensitivity ranging from $\frac{N}{500}$ (1 : 10000) to between $\frac{N}{4000}$ and $\frac{N}{6000}$ (approximately 1 : 100000) H_2SO_4. The limits for the red papers ranged from $\frac{N}{100}$ (1 : 2500) to $\frac{N}{1000}$ (1 : 25000) NaOH; and the limits for the neutral papers, which were the poorest submitted, ranged from $\frac{N}{50}$ (1 : 1000) to $\frac{N}{1000}$ (1 : 20000) on the acid side and from $\frac{N}{100}$ (1 : 2500) to $\frac{N}{1000}$ (1 : 25000) on the alkaline side.

It may be of interest to note that in a few experiments the sensitivity of taste fell far below that of the litmus papers, the limits observed for the taste being about $\frac{N}{250}$ for acid and $\frac{N}{50}$ for alkali when a drop was placed on the tongue.

In this connection attention is called to a simple and quite useful means of testing very dilute solutions by placing a drop on the middle of the broader papers. By this means the reaction of solutions more dilute than $\frac{N}{25000}$ (1 : 500000) H_2SO_4 and $\frac{N}{2000}$ (1 : 50000) NaOH could be determined. When the color change was not clearly distinct with one drop, a reaction could still be obtained by placing several drops, one by one, upon the same spot, allowing each one to evaporate before adding the next drop, thus in effect concentrating the solution to be tested. The color change appeared as a spot if the solution was rapidly absorbed or as a small ring if the absorption was slow, the color change in the latter case occurring chiefly at the circumference of the drop. When using this "spot test" it is well to make blank tests with distilled water.

The findings regarding the relative sensitivity of the blue and red papers conform in general with the statements of Dietrich,[5] whose figures for the limits of sensitivity of blue and red litmus papers show that the former are more sensitive.

It is interesting to note that one of the manufacturers stated on the label that the blue and red papers should respond quickly to $\frac{N}{250}$ acid or alkali, and that the neutral paper should respond to $\frac{N}{1000}$ acid or alkali. "Technical" dark blue and dark red papers from the same firm are claimed to respond to only $\frac{N}{100}$ acid or alkali.

[4] Walpole: "The Use of Litmus Paper as a Quantitative Indicator of Reaction." Biochem. J., 7, 260–267, 1913.

[5] Neues Pharm. Manual, 1913, 73.

Most of the samples were prepared from slightly roughened filter paper, the texture of which varied from a hard, slowly absorbing paper to one that was soft, rough and rapidly absorbing. A paper about midway between these extremes gave the best results, especially in testing very dilute solutions, since the hard papers reacted too slowly and the soft papers absorbed the liquid too rapidly, thus distributing it over too large an area and decreasing the sensitivity of the " spot test."

The thickness of the papers varied from 0.09 to 0.17 mm., usually being about 0.10 to 0.12 mm. In general the thicker and smoother papers did not absorb the liquid satisfactorily. The very thin papers were not sufficiently opaque.

The width of the papers varied from about 5 to 17 mm., usually being about 6 or 7 mm. The broader papers were the most satisfactory, especially in testing the more dilute solutions, since the progressive zone of the color change could be more readily observed or the " spot test " could be better applied.

No experiments were made regarding the effect of the atmosphere, light, and the presence of salts in the paper upon the sensitivity. It is the common experience that laboratory fumes decidedly affect the papers. Light, according to Dietrich,[6] has a harmful influence upon the sensitivity of litmus papers. The presence of foreign salts obviously would have a deleterious effect, due to their effect upon the concentration of the reacting ions, especially if the tests are carried out in such a manner that the solution to be tested is allowed to stand and concentrate on the litmus paper. In fact, it has been observed that in some cases, for example, No. "A," a preliminary washing with distilled water increased the sensitivity of the paper.

Even on the basis of our limited experiments it would seem that litmus papers will prove to be satisfactory if they comply with the following specifications[7]:

Paper: Close formation, firm, medium hard, similar to Schleicher & Schull No. 589 (blue ribbon) filter paper.

Color: Blue—dull or grayish blue. Neutral—dull lavender or pinkish violet. Red—light pinkish red.

Width: About 12 to 15 mm.

Thickness: About 0.10 to 0.12 mm.

Sensitivity: Quick response to $\frac{N}{500}$ acid or alkaline solutions.

Preservation: Litmus papers should be kept in well-stoppered bottles, preferably amber-colored.

THE COLORING MATTER OF EGG-YOLK.

The principal pigment of the yolk of egg belongs to the xanthophyll group of plant pigments. The hen utilizes comparatively little carotin in the coloring of the egg. The same pigments are present in the body fat and blood serum. When hens were fed on food rich in carotin, but relatively poor in xanthophyll, no appreciable influence on the color of the yolks of the eggs was observed. When both carotin and xanthophyll-containing foods were withheld, the tint of the yolks became markedly paler. The color of the flesh and egg-yolks of fowls may, therefore, be controlled simply by giving or withholding xanthophyll-containing foods.—*J. Biolog. Chem.: Chem. Abstr.*, 1916, 10, 627.

[6] Hager's Handbuch der pharmaceutischen Praxis, II, 268–270, 1907.

[7] Directions for preparing very sensitive litmus papers are given by E. W. Rice, " Laboratory Preparation of Litmus Paper," J. Ind. Eng. Chem., 4, 229, 1912.

THE U. S. PHARMACOPŒIA THE NATIONAL SAFEGUARD AGAINST ADULTERATION.

BY GEORGE M. BERINGER, A.M., PH.M.

The history and development of the U. S. Pharmacopœia is an interesting subject and is well worth a study by every physician, pharmacist, and chemist. The movement inaugurated by Dr. Lyman Spaulding, of New York City, in 1817, resulted in the publication of the first edition of the Pharmacopœia of the United States. Prior to that time there had been several attempts to prepare a pharmacopœia suited to the needs of certain sections of the country, and as an outcome of these early efforts there had appeared several works accepted locally as authorities. Even in the time of the Revolutionary War the need of such an authority was recognized, and the very first attempt of which we have an authentic record was evidenced in the small pharmacopœia published in Philadelphia in 1778 for use in the American army.

With the growth of each nation there is the corresponding increase of the medical practices, and the necessity for uniformity of medicines soon becomes apparent as one of the problems of national progress. This requires the preparation of an authorized book of standards and formulas, a national pharmacopœia. The United States has been no exception to this law of national progress, and the need for uniformity in the remedies directed by physicians was the inciting cause that led to the production of the United States Pharmacopœia.

Many physicians have not been content to restrict their practice to the prescribing of pharmacopœial drugs and official preparations, but have sought and used a much wider range of remedies. Hence there has arisen in this country the need for still another authorized book of formulas for non-pharmacopœial preparations that are frequently prescribed. That need has been met by the publication of the National Formulary, which has attained the authoritative position of being recognized in the Food and Drugs Act as the companion of the United States Pharmacopœia and equally a legal authority.

The pharmacopœia, as originally prepared, was very little more than a book of formulas approved by the medical profession and voluntarily accepted as the authority by doctors and druggists. Its preparation and publication were without governmental authorization, and for years it was not accorded recognition as a legal standard and authority.

The system of revision adopted for the U. S. Pharmacopœia is distinctly American, and to its very democracy must be attributed the success that has attended the plan. Without any attempt at laudation, we are justified in claiming that the recent revisions of our pharmacopœia compare very favorably with the most advanced and scientific revisions of other national pharmacopœias. It is to its honor and to the credit of American methods that it has gained the distinction of being designated as " the autocrat of the pharmacopœias."

With each revision there has been a marked improvement, and a gradual change in the character of the work can be noted. The pharmacopœia has become less and less simply a book of formulas and has become more and more a book of standards prepared with a definite purpose in view.

It was early seen that uniformity in preparations could not be secured unless the various ingredients entering into the formulas were of uniform quality. This necessitated the formulating of proper standards for every article so used, even

though many of these ingredients, such as the common solvents, were not, *per se*, used as medicinal substances.

In the editions prior to the revision of 1880 the drugs of animal and vegetable origin were treated in a rather primitive style, a simple definition in most cases serving as the entire standard. As examples of this earlier form of standard making, the following quotations from the Pharmacopœia of 1870 are cited: "Aconiti Radix. Aconite Root. The root of Aconitum Napellus." "Belladonnæ Folia. Belladonna Leaves. The leaves of Atropa Belladonna." "Coriandrum. Coriander. The fruit of Coriandrum sativum." "Scilla. Squill. The bulb of Scilla maritima." Even elementary descriptions of the macroscopic characters were omitted, and means of determining purity and freedom from sophistication or adulteration were ignored. In a very few cases botanical authorities were given, and in a few exceptions the references for such statements were mentioned. As examples: "Colocynthidis. Colocynth. The fruit, deprived of its rind, of Citrullus Colocynthis (Royle Mat. Med.)." "Senna. Senna. The leaflets of Cassia acutifolia (Delile), of Cassia obovata (DeCandolle), and of Cassia elongata (Lemaire, Journ. de Pharm., vii, 345)." "Santonica. Santonica. Syn. Levant Wormseed. The unexpanded flowers of Artemisia Cina (Wilkomm, Botanische Zeitung, 1872, No. 9)." In the latter is noted the presence of a synonym, which was the exception and not the rule of that revision.

The treatment of chemical substances in these earlier revisions was somewhat better than that of the organic drugs. As late as the revision of 1870 chemical formulas were not given, but the definitions of the chemicals were commonly accompanied by short descriptions and simple qualitative tests for identification and purity.

The revision of 1880 marked a great advance in the character of the book and a distinct epoch in pharmacopœial revision. In that revision the monographs indicate a modern, scientific treatment of the subjects. We are indebted to the convention of that year for the "General Principles to be Followed in Revising the Pharmacopœia." To the successful carrying out of these principles can be attributed the advances then made and which became the foundation for the substantial progress of the more recent revisions, and, moreover, they made possible the acceptance of the United States Pharmacopœia as the leading legal authority for the standards of drugs under the Food and Drugs Act.

Among the important improvements inaugurated in that revision may be mentioned the descriptions of crude drugs; the giving of the botanical name of the drug-yielding plant, accompanied by the name of the author, and likewise the natural order of the plant; the addition of chemical formulas for all chemicals of definite composition; more complete descriptions of chemicals, with tests for identity and purity and in many cases quantitative methods for their assay; the recognition of the principle of assaying of alkaloidal drugs with definite processes for the assay of opium and cinchona.

In the subsequent editions of 1890 and 1900 there were established as additional innovations the purity rubric in chemicals, setting forth in the definitions the degree of purity required; improved methods of assay of chemicals, drugs, and galenicals; adoption of many of the international standards; the extension of the alkaloidal assays wherever possible; and the improved descriptions of vegetable drugs and powders.

In the forthcoming U. S. P. IX, now on press, the purity rubric has been extended to vegetable drugs, and in most cases this rubric will set forth the percentage and character of allowable admixtures. The treatment of organic

drugs will show a notable improvement. Here the descriptions have been extended to the microscopical characteristics of the structure and of the powder, likewise with measurements of the structural elements. The methods of assay have been revised and extended, and the limitation of the ash content has not been overlooked. The assaying of chemicals has been extended by giving the most advanced methods, even electrolytic. For certain drugs where chemical assaying is not possible biologic assays have been proposed. Diagnostic reagents and clinical tests are provided for.

The purpose of this necessarily cursory review is to trace the evolution of the pharmacopœia from a book of formulas to that of a book of standards fulfilling the important function of serving as the legal authority for drugs and safeguarding the entire country against adulteration.

One of the earliest acts of Congress, if not the first, recognizing the pharmacopœia as a legal authority, was the act to prevent the importation of adulterated and spurious drugs, approved June 26, 1848. This law named the United States Pharmacopœia first in the list of authorities for " testing the strength and purity " of imported drugs. That law has not been repealed, and, despite the fact that the Federal Food and Drugs Act has superseded many of its important paragraphs, it remains the authority under which the Treasury Department still issues its regulations regarding imported drugs.

When the Food and Drugs Act of June 30, 1906, specified the United States Pharmacopœia as its principal standard for the strength, quality, and purity of drugs, there was some doubt as to whether the U. S. P. VIII, which had not been prepared with the main purpose of serving as a legal standard, would meet the requirements of the law. This responsibility has now been placed upon the Pharmacopœia for nearly ten years, and it appears to have satisfactorily served the purpose. The U. S. P. IX has been prepared with the full knowledge of its official standing as the legal standard, and a comparison of its monographs with the monographs of the previous revisions will demonstrate that throughout every page its character as a law book has received consideration.

It is to be noted that when the Food and Drugs Act was passed no book of standards for the foods was available, and so no standard work was named for determining the strength, quality, and purity of foods. The Department of Agriculture has been attempting to supply this deficiency through decisions, thus arbitrarily fixing standards for certain food products. The act does not specify any standards for foods, nor does it delegate to any department or body the authority to prepare legal standards for these, and so it becomes a grave question if standards fixed by department proclamations are valid or can be enforced as legal standards under the law.

On the other hand, the United States Pharmacopœia, from cover to cover, is a law book for the quality of drugs. Its standards reflect the best thought and ability of the times. There is scarcely any question relating to the quality of the commonly used drug products which cannot be answered, either directly or indirectly, through the information contained in this volume. As a storehouse of useful information it is invaluable to those who would manufacture and deal in medicines. As a rule, its tests are within the means and ability of the average pharmacist. A few of the official tests may require special apparatus obtainable only in laboratories of the larger manufacturers or expert chemists, but there are very few drugs, chemicals, or preparations the purity of which cannot be quickly determined by the druggist with the apparatus and test solutions which should be on hand in every pharmacy and laboratory.

The responsibility for complying with the requirements of the Pharmacopœia is placed upon the individual who assumes to compound and dispense drugs. It is the plain duty of every pharmacist to support absolutely the standards of the Pharmacopœia and to respect and follow the principles and precepts of this volume. It is unfortunate that some of those who are engaged in the drug business have not yet learned of the adequacy of the United States Pharmacopœia and have failed to study its requirements.

The druggist cannot be blamed for following the usual law of trade and seeking to obtain his supplies in the cheapest markets, especially under the conditions prevailing at the present time, when prices are largely speculative. He is, however, negligent if he purchases from irresponsible sources without a guarantee and without himself testing such purchases.

Many of the adulterations that have been reported as practised through such unreliable sources of supply as itinerant pedlers could have been detected by the simplest test laid down in the Pharmacopœia. It is difficult to understand how any druggist could have been deceived by such gross adulteration as the sophistication of boric acid for acetphenetidin and cream of tartar for aspirin.

POSSIBILITIES FOR DISPLACING UNOBTAINABLE MATERIA MEDICA.—THE U. S. PHARMACOPŒIA IX.*

BY S. SOLIS COHEN, M.D.

Professor Solis Cohen contends that the problem of finding a drug that will successfully displace one now unobtainable, or practically so, is not so simple as the mere substitution of sodium for potassium as a basis for iodides, bromides, acetates, etc. As a matter of fact, sodium is preferable in most cases, though there are a few in which the potassium is needed to preserve the ionic balance, or for other reasons. But one cannot get the needed effect of a hypodermic injection of quinine in malaria or pneumonia, for example, from tincture of cinchona, nor the needed strychnine effect from nux vomica. It is just because there is a difference between the medicinal effects of galenicals and the medicinal effects of alkaloids, each having its proper sphere, that the consensus of medical opinion frowns upon the erection of alkaloidal therapy into a cult. Of course, there are some cases in which belladonna may be made to serve the purpose of atropine, and doubtless physicians will bear in mind this suggestion. So far as the coal-tar products are

* The paper by Mr. Beringer and the remarks by Dr. S. Solis Cohen have a particular interest at this time on account of the advent of U. S. Pharmacopœia IX. These were presented at a joint meeting of the Philadelphia Branch, American Pharmaceutical Association, and the Philadelphia County Medical Society. The purpose of the joint meeting was largely to consider the present drug situation, causes, means of relieving, etc. There were a number of other most excellent papers and addresses, which have appeared in part. Dr. R. P. Fischelis spoke along lines embodied in his paper published in April, 1916, JOURNAL, p. 411. Dr. Franklin M. Apple reviewed the market conditions of the past two years. Dr. John R. Minehart referred to many native drugs that are available. Prof. C. H. LaWall spoke of the large commercial consumption of drugs and chemicals in manufacturing as causes of scarcity, and the need for revision of our patent laws. Dr. Horatio C. Wood emphasized the latter statement, and indicated that the difficulties arising through unobtainable drugs were not nearly so serious as some contend; that some, at least, could be advantageously displaced.

concerned, Dr. Solis Cohen will be perfectly satisfied if acetphenetidin and acetanilide should become permanently unprocurable. While these agents have a field of judicious use in which nothing else will replace them, yet they are so much more abused than used that their disappearance would have a balance of advantage.

A physician who prescribes intelligently, and has a reason for each drug and each preparation that he employs, will find it as difficult to alter his habits of prescribing as he would in going back from the automobile to the ox-cart or shank's mare as a method of locomotion. When one must, he must, but not otherwise. The tariff has no bearing on the question. Our idiotic product patent is the chief trouble.

Regarding the U. S. Pharmacopœia, now happily drawing near to publication, the speaker characterized it as a super-excellent work in every respect, except that as Chairman of the Sub-committee on Scope, he could not very well praise or blame this portion of the work. Two extreme views were urged upon the Committee of Revision. One looked upon the Pharmacopœia as a text-book, and required it to omit every drug that had not been proved by laboratory experiment to be of therapeutic value. The supporters of this view probably overlooked the fact that to carry it to a logical conclusion would leave nothing for the Pharmacopœia but salvarsan and water, since every other drug derived much of its therapeutic value from properties incapable of pharmacodynamic demonstration, and, as salvarsan is patented, that, too, would be excluded. Apart from this, however, the departure was too radical to be undertaken suddenly. Other extremists desired to include everything that had ever been used as medicine at any time in the history of mankind by physicians, charlatans, or old women. One group corrected in large measure the extravagances of the other. While the speaker personally would have preferred to see the Pharmacopœia somewhat more opulent, and also might have wished some things omitted that have been included, the selection, on the whole, is a fair representation of the consensus of medical and pharmaceutic opinion.

Mr. Beringer laid his finger upon the crux of the situation in saying that the Pharmacopœia, from cover to cover, is a law book. A law book must not represent your whim or my whim, but the necessities of the community. The scientific work—botanic, chemic, pharmaceutic, and biologic—is probably superior to anything done in a book of this kind before. Future revisers have had their work made very easy in comparison with that which fell upon the present committee.

COMPARATIVE TOXICITY OF VARIOUS PREPARATIONS OF MERCURY.

The toxicity of the various mercurial salts is directly proportionate to the amount of pure mercury contained. The average relationship as to the toxicity between the intravenous and intramuscular administration of mercury in general is about 4 to 1. The insoluble preparations, such as gray oil, are absorbed at the rate of a little over 1 percent of the injected amount per day. Even at the end of six or seven weeks almost 50 percent of the mercury of insoluble preparations may be unabsorbed at the site of the injection, hence the injection of the usual doses of insoluble mercurial compounds at weekly intervals must invariably lead to accumulation of the drug in the tissues.—J. F. Schamberg, J. A. Kolmer, and G. W. Raiziss (Journ. Cutaneous Diseases, N. Y., December, 1915, through Journ. Amer. Med. Assoc.).

CHAPARRO AMARGOSA IN THE TREATMENT OF AMŒBIC DYSENTERY.

P. I. NIXON, M.D., SAN ANTONIO, TEXAS.

In former reports [1] I outlined the treatment of twelve cases of amœbic dysentery by the use of chaparro amargosa. As reported in a footnote,[2] there was a recurrence in Case 9, and the patient has continued to have trouble from time to time. This patient, I believe, has not been sufficiently treated; I have communicated with him by mail, and find that he keeps a supply of chaparro amargosa on hand, and when his trouble begins he treats himself, leaving off the treatment when his symptoms have subsided. So far as can be determined, all the other patients, including the patient in Case 10, have remained well for from two to four years.

Other patients have been treated, and the results have been no less satisfactory. The present brief report has to do with the results obtained in a single case; it seems worth while to put this case on record in that emetin (alkaloid) administered hypodermically every day for five months had not altered the course of the disease. The emetin used was obtained from several different sources, and was prepared by two or three drug firms, so that its potency can be taken for granted. The effect of chaparro amargosa in this case was not so immediate or so magical as that brought about in most of the other cases, but the improvement has been sufficiently rapid to justify the belief that the excessively chronic and obdurate cases of amœbic dysentery can be controlled by the use of chaparro amargosa.

REPORT OF CASE.

History.—W. D., an unmarried man of fifty-six, of previous good health, developed diarrhœa in April, 1914, eighteen months before he was seen. A few weeks later dysentery with the passage of a great deal of blood and mucus began. The frequency of the bowel movements has varied from five to thirty times in twenty-four hours, and at no time since the onset have the bowels moved less than five times. Abdominal pain, tenesmus, vomiting, slight fever, weakness, and general malaise have been accompanying symptoms. The appetite has been fair at times and again it has been very poor. The patient's weight has decreased from 205 to 148.

During the first year, various remedies were used. In March, 1915, emetin was begun and was given hypodermically in one-half grain doses every day till the latter part of July. From August 1 to October 1 other drugs, including quinine by rectum, were tried. From October 1 to November 10, emetin was again used, 1 grain being given every other day. The patient came to me November 11, 1915, the day after his last dose of emetin. At that time the bowels were moving from fifteen to twenty times a day.

Physical Examination.—The loss of weight was obvious. The skin was flabby and the mucous membranes pale. General examination was negative. In the left iliac fossa the sigmoid was palpable as a tender elongated mass. A stool passed in

* Reprinted from Journal A. M. A., March 25, 1916, p. 946. One of the reasons for reprinting this paper is to show that there are American drugs which may prove valuable additions to the materia medica.

[1] Nixon, P. I.: Chaparro Amargosa in the Treatment of Amœbic Dysentery, The Journal A. M. A., May 16, 1914, p. 1530; *id.*, Am. Jour. Trop. Dis. and Prev. Med., 1915, ii, 572.

[2] Nixon, P. I.: Chaparro Amargosa in the Treatment of Amœbic Dysentery, Am. Jour. Trop. Dis. and Prev. Med., 1915, ii, 572.

the office was practically pure mucus and blood, and contained many active organisms of *Endamœba histolytica* and *Cercomonas intestinalis*. A striking characteristic of the stool was the extreme tenacity of the mucus; it was possible to raise the entire stool on an ordinary toothpick.

Treatment and Course.—After a preliminary dose of Epsom salt, a glass of fresh infusion of chaparro amargosa was given by mouth four times a day and a quart of the same infusion was introduced into the rectum in the knee-chest posture once a day. For three or four days improvement was only slight. At this time I noticed under the microscope that all unattached amœba in a particle of stool, to which the infusion had been added, were killed, while those embedded in the tenacious mucus were still active. With the idea of removing as much of this mucus as possible from the intestine, a preliminary rectal irrigation of sodium bicarbonate, 1 ounce to the quart, was used; after this was expelled the usual injection was made. Under this plan blood and mucus no longer passed, but the patient continued to have from three to five soft movements a day. Calomel, one-tenth grain, was given every hour for ten hours after the method of Freund, and continued for several days; the bowels moved from one to three times a day, assumed a semisolid consistency and no longer contained the cercomonas. At the end of ten days the patient felt quite well; his appetite was ravenous; he could eat anything; he was having from one to three semisolid bowel movements a day; he had gained 10 pounds in weight and had improved in every way. He was seen a month later and his improvement had continued despite the development of a very large ischiorectal abscess; bowel movements were normal in frequency and consistency.

COMMENT.

I appreciate that it would be easy to criticize the dosage and particularly the duration of emetin treatment in this case and to suggest that no conjunctive amœbicidal irrigations were used. The fact apparently is that this case would not have responded to emetin if its administration had been differently carried out. Obstinate cases have been reported; for instance, Low,[3] as late as November, 1915, wrote:

Though practically all cases of amœbic dysentery respond quickly to emetin treatment, there is a small residuum—in which there has been no doubt of the correctness of the diagnosis—which does not, symptoms continuing and amœbæ, vegetative and cystic, being still found in the stools. Such cases require further careful study to explain this anomaly.

No one who knows how prone this disease is to recur would be willing to contend that in the case here reported the patient is permanently cured. All that one can say is that he is clinically cured and that no amœbæ, vegetative or cystic, can be found in the stools.

My own experience with emetin has been quite limited; in no case of amœbic dysentery have I felt the need of it. Chaparro amargosa, on the contrary, I have used repeatedly, and its effect has been unfailing. At the present time, when the price of drugs is almost prohibitive and with prospects for still greater increases, it is pertinent to state that the supply of chaparro amargosa is well nigh inexhaustible.

[3] Low, G. C.: The Treatment of Amœbic Dysentery, Brit. Med. Jour., November 13, 1915, p. 714.

SHOULD THE DRUGGIST KNOW THE NATURE OF SUBSTANCES HE DISPENSES?

F. J. PERUSSE.

While the following article is composed largely of a series of questions, it brings out important thoughts from the active life of pharmacists. Several of these questions, though not new, are worthy of consideration by associations. *Confidence* is an important factor in every activity, in fact is one of the essentials of business and must be passed along. It is impossible for the average pharmacist to test all the materia medica he handles; if this were necessary, it would certainly reduce the volume of his business and increase the overhead expenses. The reliability of our pharmaceutical and chemical manufacturers is of a high quality, and contributes to the efficiency of pharmacists. The error that is cited in the article, or similar one, may occur, but so rare are these occurrences, that they are impressive because they are unusual. It is almost impossible to employ the same care, in the average pharmacy, for the prevention of errors, as is imperative in manufacturing establishments. What the retailer rightly says to the consumer, "Know whom you are dealing with," is applicable in buying.—EDITOR.

What should the druggist know about the physical and chemical properties, or the probable adulteration of, or the constituents of, preparations he is dispensing?

Some time ago the author was discussing this subject with a local druggist in connection with adulteration of aspirin recently brought to light in this state. A number of druggists had been selling aspirin powder and tablets, adulterated with acetanilide; whether or not they were ignorant of the presence of the latter has not been determined. In this instance, should the druggists have known that they were dispensing an adulterated product? The local druggist said he thought that all these men were innocently dispensing this adulterated article. He further stated that it should not be necessary to examine everything for probable impurities, or to test the strength of each preparation before dispensing it. He said, "If a druggist did that, he would never get anything else done."

Why, then, is it necessary to incorporate into the Pharmacopœia certain tests and assays? Are they simply put in for the benefit of instructors or students in pharmacy, or for those who see to the enforcement of the food and drug law? It seems to me that at least the qualitative tests should be applied, by the pharmacist, to see if his stock meets with the requirements of the Pharmacopœia; or prove the absence or presence of impurities in substances not official.

A few substances could be examined during spare moments, until all the stock had been gone over. Some druggists contend that the way of getting out of doing all this work is to buy from some reliable firm. The author has experienced that the policy of depending on substances from a reliable firm did not always hold good, when he had occasion to help a young man in the calcination of calcium carbonate in the preparation of pure calcium oxide. We placed what we considered calcium carbonate in an electric muffle, and heated it for a length of time which we judged would be sufficient for all the carbon dioxide to be driven off. But we found it responded positive to the carbonate test, and again, after further heating;

then we analyzed some of it and found it to be sodium carbonate. On examining the label of the container it was found to be labelled calcium carbonate. It also stated the presence of impurities and the amount. Other containers similarly labelled also contained sodium carbonate.

As for examining galenicals, etc., even if bought from a reliable firm, how many of these drug houses will guarantee the strength of a preparation after the container has once been opened? Will they be responsible for its strength until it is all used up? If a druggist dispenses a deteriorated product, is he not guilty of dispensing an improperly labelled product? And how about preparations which you cannot buy from a reliable firm? Another druggist raised this question, "How many druggists do you suppose are capable of doing this kind of work"? Some can not, others can and don't.

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THE McNEERY METHOD FOR PREPARING "MILK OF MAGNESIA."

Wilson W. McNeery, at one of last year's meetings of the Philadelphia Branch of the American Pharmaceutical Association, presented a formula for making "milk of magnesia" based on the formation of the suspended magnesium hydroxide in the reaction between sodium hydroxide and magnesium carbonate, and this method has received the recognition of the Revision Committee of the U. S. Pharmacopœia IX.

The reaction between magnesium carbonate and sodium hydroxide is given, and the further calculations are made for arriving at the quantities needed of the *official* chemicals for making a magma containing 40 grains of magnesium hydroxide in one fluidounce of preparation. The calculations develop that in order to have a preparation holding in suspension 40 grains of magnesium hydroxide in a fluidounce is the equivalent of 5120 grains in a gallon, and for this production 9212.46 grains of U.S.P. magnesium carbonate and 6256.08 grains of U.S.P. sodium hydroxide are required and hence constitute the formula for the preparation.

The manipulation is given by Mr. McNeery as follows:

Place 9212.46 grains of magnesium hydroxide in a mortar and triturate with sufficient water to make a smooth mixture. Dissolve 6256.08 grains of sodium hydroxide in sufficient water to make 32 fluidounces of solution. Add the latter solution to the former mixture; pour into a large container and wash by decantation or syphoning until the supernatant liquid is neutral to litmus. Then allow the precipitate to subside until its volume is one gallon, withdrawing the liquid above.

If a slight excess of alkali is used for the reaction, and the precipitate is carefully washed, the product is practically free from carbonate. The product is smooth, white and creamy.

COMMENCEMENT.*

For a long time I did not know what the term "commencement" meant. I took a personal part in a commencement at the end of my grammar school course, in another at the end of my high school course, in still another at the end of a business course and in three others at the ends of three collegiate courses. Not until the time of the commencement at the end of my first collegiate course did I really understand what the term meant. No one had explained it to me before and I had not given the term any special thought. Because commencement always came at the end of a course, I took it that the term was a sort of formal one describing the usual functions attending the end of a course of study. It did not occur to me at the time that the end of one thing was the commencement or the beginning of something else.

This occasion is a commencement. It also comes at the end of a course; your course in the College of Pharmacy of the University of Illinois. If the term "commencement" is a correct one, then it should mean what it designates. And it does. It is a commencement—a commencement of what? It is the commencement of a very important if not the most important period or era in your lives—the commencement of your professional career; the commencement of that period which will determine your success or failure in life, your usefulness or the reverse to yourselves and to your fellows; the period in which you first are released from the guidance, direction and discipline of your teachers and in which you are thrown upon your own resources, are left almost wholly to your own ambitions or lack of them; the period in which the responsibilities of others in you cease very largely or altogether; the period in which you assume greater duties, privileges and responsibilities than ever before; the period in which you will begin to realize or fail to realize the ideals which it is fair to assume you have already formulated and cherish; the period in which you will succeed or fail in applying the teaching and training you have enjoyed; the period, in short, in which each one of you enters the arena of life and the estate of full membership in your calling and in society. This occasion is therefore the commencement of the critical period of your lives.

I regard it as a distinct privilege to have the honor of addressing you at the beginning of this serious time in your lives. You will pardon me if I record that this is my twenty-fifth commencement address. Twenty-five times now I have had the good fortune to speak to young men and young women of the great opportunities and privileges of life. It is also my good fortune to have the knowledge that many of the things I have said and advocated on occasions like this have led to a satisfactory fruition in the subsequent lives of many young entrants upon our beloved calling. On all of these occasions, except one, I have spoken extemporaneously and informally, usually because of lack of time to commit to paper the thoughts that the occasions suggested, but at last I have found the time, or, to state it more correctly, have made the time to put into more permanent form one of the messages I have to graduates.

WHAT IS LIFE?

Let me ask: What is life? First, it is our most precious gift from on high. It is our most precious privilege and opportunity. We have heard it said, "The

* An address delivered at the graduating exercises of the University of Illinois College of Pharmacy, at Chicago, April 26, 1916, by Dean Frederick J. Wulling, University of Minnesota.

world owes us a living." Not so! Not so by any means! Each one of us owes the world our life. We are in debt for our lives and our first and foremost duty is to recognize this debt and to discharge it. It takes a lifetime to discharge it. Look forward! What shall we say in the balancing of accounts " when the summons comes to join the innumerable caravan "? Shall we then look back with regrets or with rejoicing? You are to determine upon the affirmative answer now if you have not already done so. Your preparation begins now, at this moment, and it should continue with every moment while you are here on this mundane sphere. You are in the onward rush of life and you cannot afford not to improve every single moment. Every moment rightly and unselfishly used helps to balance the debt of life you owe the world and your fellows.

THE LAW OF BALANCE.

In this connection let me bring to your minds as forcibly as I can the law of balance. Meditate upon this law. Read the Scriptures of all races and of all civilizations upon this law. This law is variously stated but its principle is the same, unchanging and eternal. One version is: " Do unto others as you would have others do unto you; " another: " As ye sow so shall ye reap; " another: " Cause and effect are eternally inseparable." It is also called " The law of compensation " and " The law of action and reaction." Divine teachers, philosophers, poets and more humble folk have recognized and expounded this law in all ages. It is fundamental, immutable and inviolable and from it there is no escape. It is a spiritual and a moral as well as a natural law. It is divinely appointed for your benefit and mine. It reigns supreme, but it is just. By its virtue you are the centre of your world, the creator of your worldly success or failure; of your environment; of your development or the reverse. By it you are your own judge; it recognizes no chance or luck or accident; by its wise employment you grow and prosper and gain power; ignorance of it accounts for all the negative conditions of life; by it you overcome temptation and thus gain the power the temptation had, or you are overcome by temptation and lose power and strengtlt by that much; by your choice and by its operation you become selfish or unselfish, wise or foolish, self-reliant or dependent, gentle or brutal, tolerant or critical, cultured or coarse, beloved or hated, industrious or indolent, healthy or ill, free or fettered, master or slave, creditor or debtor, strong or weak, humble or proud, respected or despised, inspired or dull, illumined or deadened, brave or cowardly, victorious or defeated. By this law Emerson's statements, " The one base thing in the universe is to receive favors and grant none " and " The benefits we receive must be rendered again, line for line, deed for deed, cent for cent, to somebody in some way," become clear. By this law, in short, you become the beneficiary of the priceless means of largely shaping your destiny.

If this law is true, and it is, men and women are its trustees and administrators; hence what a wonderful thing a human being is; how wonderful and inexpressibly great is its endowment! Its power is greater than that of any other of God's agencies. Have you ever realized how divinely endowed you are for self-help? Think for a time on this. Think of the scope and breadth and magnitude of human achievements and human institutions. Think of what man has accomplished by the conscious and unconscious employment of the law we are discussing. Each of you will then realize as a member of the brotherhood of man how indescribably great are the capacities and powers inherent in each one of us. This realization will force upon us the conclusion and conviction that we are bound to

dedicate our lives to the greatest privilege in the world—affirmative, helpful, efficient service to man and hence to God our Father and the Author of all.

Commencing with this realization and conviction and with the dedication of our powers, our work and our very selves to this service, our usefulness in the world and the outcome of our lives and careers cannot be in doubt.

HOW SHALL WE PROCEED?

Now coming to the concrete and specific, by what formula or direction shall you proceed? You have had, I take it, an adequate training in the theory and practice of pharmacy. I will not review the technical, professional training you have received. The personnel of the faculty which directed your study deprives you of any excuse of insufficient information or training in the technic of your calling to enable you to begin that period of your development in which you are to apply your theory to practical and useful ends. But having studied diligently and industriously you have not yet done your full duty. I am in full accord with Epictetus, who says: "Do you think I shall call you industrious because you pass your nights in studying and reading? By no means. I must know what is the object of all this study. If you are working for glory, I call you ambitious. If you are working for money, I call you avaricious. But if you study in order to cultivate and form your reason, to accustom yourself to obey the laws of nature, to fulfil your duties, then only will I call you industrious; for that is the only labor worthy of a man."

A UNIVERSAL PRESCRIPTION.

Mere study and the acquisition of knowledge and information is not sufficient. The formula includes many other ingredients. You have dispensed some medical prescriptions and will dispense many more. The prescription I will give you is not such a one and will require your lifetime to dispense. The prescription is this:

℞. The measure of a life time of efficient and loving service to your fellows.

Dispense according to the art of living.

It appears at once that this prescription can be compounded by anyone whether a pharmacist or not who lives a reasonable length of time. All men and women, whatever their walks in life, ought to fill or ought to endeavor to fill this prescription. They are compounding some sort of a life. I mean to imply that it is the duty of the pharmacist to live commensurately as full and useful and affirmatively and beneficently serviceable a life as anyone. The ingredients of the prescription are the same whoever compounds them and they are as free and universal as the air and sunshine. They may be appropriated *ad libitum*. They should be compounded according to the directions: misce secundum artem vitae—compounded not according to the art of pharmacy but according to the art of living, for life is an art; some say it is a fine art. You are skilled or soon will become skilled in the art and science and practice of pharmacy, but you must also become skilled in the infinitely greater and more universal art of living rightly. Pharmacy is only a part; life is the whole, or at any rate, a greater part. This life may be a preparation for an immeasurably higher activity, as your college years have been a preparation for your coming larger mundane life. Who knows? It would be only natural if it were so. This prescription, then, is to be compounded according to the rules of the art of living and of wisdom. What are the important ingredients? Some of them come to me in the following order: honesty, integrity and morality, intelligence, self-reliance and good character, faithfulness, earnestness of purpose, industriousness, perseverance, patience, kindness, generosity, tactfulness,

courage, energy and promptness, accuracy and thoroughness, method, wise economy, resistance to temptation and evil, good manners, refinement and culture. Above all these I place godliness, cleanliness, love, hope, faith and charity.

I have called these components "ingredients" to remain within the idea and figure of the compounding of a prescription but in reality they are *qualities;* qualities inherent in all of us, and qualities more or less dormant or active in each of us according to our respective degrees of development and which in their totality constitute *character and capacities,* and these latter all thoughtful and wise persons cherish most highly and seek ever to develop more fully.

THE WORLD IS A LABORATORY.

Where shall these ingredients be compounded? Shakespeare says, "All the world's a stage." This gives me liberty to say, "All the world's a laboratory in which life is in the compounding." Wherever we may be or whatever our circumstances may be we all are in that vast laboratory and in it we can compound largely as we please, subject to the law of balance we have already discussed. It is our privilege to choose either wisdom or ignorance as our guide. If we choose rightly we make of the law of balance a law of success and make of the world a vast agency of success. Because success is in the nature of men and things, the right compounding in this world's laboratory is not at all difficult. Most of the difficulty is overcome in the recognition of the possibility of developing the ingredients I named *in our own selves.* The quantities of the ingredients and therefore of their product depend upon their development within our own selves according to our volition, willingness and determination.

In your course in pharmacy you learned much about the ingredients of medical prescriptions. Time will not permit me to tell you all about each of the ingredients I mentioned as entering into the universal prescription I gave you and at which you will continuously compound during your lifetimes, but I can and will tell you something about some of them.

I mentioned first *honesty, integrity* and *morality.* There is a voice within us whose counselling we should regard. I mean our conscience. It is the tribunal which decides for us unfailingly; it approves or condemns. Our moral sense decides for us between right and wrong, between lawfulness and unlawfulness. It is our supreme court. Its decisions are infallible and instantaneous. We should not deny the dictates of our conscience; rather should we appeal to the voice when it is silent. If we follow it we will of necessity be moral and honest. We should be honest not simply because Franklin or someone said, "Honesty is the best policy." That would be utter weakness. If we were honest only because it seemed politic to be so our honesty would not be trueness. We would then not hesitate to be dishonest if it seemed politic for us to be so. Let us be natural; it is natural to be upright, moral, honest, and unnatural to be otherwise. In whatever we do we should have the approval of our conscience.

SELF-RELIANCE.

The next ingredient I mentioned is *self-reliance.* The self-reliant are their own sufficiency. We ought to rely first upon ourselves—"Heaven helps them who help themselves." We have largely the power to be what we will to be. The sum of the experience of men points to self-reliance as the greatest factor in the success of the individual; and the success of the individual becomes that of the nation. Reliance upon others is an indication of weakness and is enfeebling; reliance upon one's self is invigorating and stimulating. If we need the help of others, we should

seek the guidance, and perhaps government, of those only who are mature in experience and wisdom. Growth and progress are best insured by the exercise of our inherent powers. We should rightly appreciate our powers and cultivate and develop them. All really great men have become such largely through the perception and development of their own powers. Knowledge and conviction of our inherent powers stimulate us to attempts which we would not otherwise make. To be self-reliant we must recognize the powers naturally ours. We must do for ourselves, and above all we must think for ourselves. We must be able to respect ourselves. Let us look to the culture of our character as well as to the development of our intellect and skill. It is folly to rely upon institutions or persons to do this for us. The institutions of men, educational, governmental, social or business, can give us no active aid. The best they can do is to stimulate us to help ourselves. But if our self-reliance has led us to success, as it must, we must not permit our independence to make us haughty or arrogant. We would then have descended from our lofty pedestal of wisdom to the depths of vain pretension.

INDUSTRIOUSNESS.

Industriousness is another essential part of the prescription. Let our industriousness be well-directed. Self-reliance cannot be practiced without industriousness. Industriousness has built empires—with it we can build ours. Wisely directed industriousness lands us in the haven of material prosperity. Nor should it deprive us of pleasure and enjoyment—these are concomitant with industriousness and are its offspring. While we should be industrious, we should never drudge. We surrender our claim to wisdom if we drudge. Nor should we fuss or fidget or dawdle. We can never afford to be so extravagant with time. Time is Nature's stock, and it is our capital. We must learn to appreciate the value of time, to improve its moments. A lifetime is a vast aggregation of moments. Napoleon said that every lost moment gives an opportunity to misfortune. Moments demand to be rightfully used.

Industriousness does not mean constant work or occupation merely; it means wise and judicious employment of moments, hours, years, lifetimes. Let our application be of the kind that is fruitful. Never should we debase our powers by putting them to unprofitable, unremunerative, unavailing, dishonest, vain or useless employment. To be industrious with healthy, profitable pursuits is to become trained and disciplined as you could not become by any other agency. The element of progress for both the individual and the State is fruitful, congenial industriousness. I would rather that you have a hobby than that you be idle, but make your hobby bring you entertainment or instruction, or both. Successful careers depend upon judicious industriousness.

PERSEVERANCE.

Perseverance is another of the primary ingredients. If our purpose is just and wise, we should pursue it to the end. If we are self-reliant and industrious, we must as well be persevering. That fortune is usually the reward of the industrious disproves that fortune is an accident.

Industry through the quality of perseverance ripens into prosperity. Perseverance is a quality to be cherished. If we have it not, we should acquire it. We should persevere until we will have acquired perseverance. With it we overcome, without it we are overcome. Continuity of application to a just and worthwhile purpose gives success its birthright and makes failure impossible. We need

not be geniuses to become successful. Genius annihilates time in acquiring, doing and accomplishing. Given other equal qualities, perseverance will do what genius does—only it needs more time. Some geniuses have developed through perseverance and application, but the world does not then call them geniuses. You can become a genius by the slow process, employing the agency of perseverance. Newton worked out his discoveries "by always thinking unto them." Keppler brooded with the whole energy of his mind upon his subjects. Watts and Stephenson taught themselves chemistry, arithmetic and mechanics during their leisure moments. Their perseverance gave us the steam engine and the locomotive. Had Columbus been less persevering and persistent, civilization might not now have America. Scheele, Priestley, Dalton, Davy and millions of others benefited themselves and the world by their persistent application to purposeful ends. An assiduous cultivation of knowledge and of skill is a solvent of most obstacles. Accident and so-called blind fortune are not breeders of success; wise and persistent industry and faithful application are. Let us resolve that not a day shall pass in which there will not ripen a fruit of our perseverance. The limit of our accomplishments and achievements is measured by the limit of our painstaking and perseverance. Excellence is the end of perseverance.

PATIENCE.

Patience is another ingredient that we must compound into the prescription of life. Patience is a conqueror. There is this difference between perseverance and patience: the one is active, the other passive. Perseverance is continuous *doing*, patience is continuous *waiting*. He who sows must wait in patience for the harvest. Impatience never hastens nor accomplishes anything. Patience is the power that awaits results calmly, cheerfully, hopefully. Patience is an exhibition of faith in the order of things. The wise are patient in all things. Patience waits, overlooks, excuses, forgives, composes, endures; is not hasty, nor provocative, nor revengeful, nor uneasy, nor discontented. Patience is unselfishness, sacrifice, liberality, generosity, magnanimity. To know how to be patient is to know how to overcome.

KINDNESS.

Kindness is another ingredient. True kindness is voluntary. Conduct toward others is the criterion by which men are judged. Courteous behavior brings pleasure and regard. Respectfulness, civility, politeness are good qualities to possess, but kindness is their superior. They spring from the intellect, kindness from the heart; they may be artificial, feigned; kindness is always natural and sincere. Kindness is voluntary, spontaneous; it succors, relieves, sympathizes, pleases, supplies. Kindness creates good feeling, gratefulness, happiness. It springs from the deep recesses of the nature in which love has its origin. It gives and expects no return. Kindness is benevolence, charitableness; it is good-will to all. Kindness elevates, refines, dignifies; abolishes rudeness, vulgarity; establishes harmony. If you are kind to others you are kind to yourselves. Be not sparing with your kindness.

TACTFULNESS.

Of the ingredient *tactfulness* let me say: The tactful precede action by inquiry. To be diplomatic is to be superior. He who has tact has a faculty whose exercise brings harmony. Tact discerns, discriminates, selects the best. Tact knows what and when and how to do. Tact adjusts, constructs. It is the means whereby to remain out of avoidable trouble. It is the exercise of common sense. Diplomacy

is cleverness, quickness, sagacity in dealing with your fellows. Diplomacy adjusts what temper would upset. It wins by peaceful means. If our adversary must be overcome, let diplomacy be the weapon of our defense, but let us use it honestly. Let our victory consist in convincing our adversary of his error. Tact never offends. Diplomacy seldom fails.

COURAGE, ENERGY, PROMPTNESS.

Among the ingredients I mentioned *courage, energy* and *promptness*. The courageous inherit the world. Audacity is not courage. The stimulating quality of courage never disappoints. Courage grows out of conviction and knows not fear. If we are convinced that we are right, we should proceed upon our purpose, but let us make no error as to the quality of our conviction. The quality of conviction must be single, must be sure. We should be courageous not spasmodically, but continuously. That strength of mind that enables man to encounter danger with firmness is not the only species of courage. There is another kind—the kind that is the source of patience in enduring, of forbearance under injury, and of magnanimity in all conditions of life. The former is valor, the latter fortitude. Let us cultivate both and exercise them as occasion may necessitate, but without complaining.

Active *energy* is akin to courage. Courage without energy may fail ere its purpose is fulfilled. Our energy should insure the continuance of our courage. Energy gives emphasis to purpose; it is our inherent power of vigor, strength, force and life. To be without energy is to be enervated, weak, feeble, effeminate. If we allow our energy to lie dormant, latent, we are unpardonably wasteful and foolishly extravagant. If our courage and energy have led to resolutions, let action follow swiftly. Promptness is never behind time. The courage that begins to-morrow when it should set to work at once dies of inanition ere the morrow comes. Promptness is quickness of action following decision—it is recognition of the value of time. Our promptitude should not be only of the kind that stimulates our courage into quick operation in the suddenness of vicissitudes, but it as well should characterize our behavior in the execution of the many little things that come to us for administration. Courage, energy, promptness, are rapid means with which to overcome.

ACCURACY AND THOROUGHNESS.

Accuracy and *thoroughness* are among the primary ingredients I mentioned. Accuracy is permanence. The result of thoroughness is perfection. One cannot be accurate without being thorough. Accuracy leads to permanent results. Thoroughness is a parallel means to the same end. Accuracy is precision, correctness, nicety, without which the practice of any vocation is failure. Inaccuracy is error and serves no purpose. Take time to be accurate. Thoroughness is completeness, reliableness; it is something to be depended upon. It is not halfness, but wholeness. Things worth doing at all are worth doing accurately and thoroughly. The doing of things not worth doing thoroughly is often waste of time and energy. Superficiality never leads beyond the obvious and apparent; it never penetrates. A little knowledge of an exact nature is invariably more valuable for practical purposes than a smattering of much. Be accurate in your speech, your methods, your doings. Accuracy and thoroughness are the roadways to profundity.

METHOD.

Concerning the ingredient *method* let me say: To be methodical is to be wise in the manner of doing. To be executive is to be wisely administrative. Man is

born to have dominion. His dominion makes of him an executive, and if he fails in wisely administering the affairs of his life and condition and vocation he becomes dominionless: a sorry spectacle to behold. Direct and execute your affairs wisely that you may prosper. Wisdom is many things—it is the employment of method in the manner of doing. With method there is order, without, confusion. Method is wise economy. Method facilitates.

WISE ECONOMY.

The ingredient *wise economy* is worth a line or two: Economy in all things is wisdom. Economy does not mean to undergo privations to save and hoard money. That is blindness and extravagance called parsimony. Economy is wise management, judicious regulation and competent government of our affairs and things. It not only includes a prudent and conservative management of all means whereby money and property are obtained, but also a judicious application of talent, knowledge, skill and time. Economy increases money by spending it to advantage; it demands a fair return; it incurs no waste. We can afford to be economical in an extravagant way. It is the only kind of extravagance we should not deny ourselves. Economy delivers from helplessness, from dependence. To be economical with our time is to fill our moments with profitable industriousness; to be economical with our dollars is to use them judiciously and in a way that will make them bring us competent return. Economy saves and produces.

GOOD MANNERS AND REFINEMENT.

The ingredients *good manners* and *refinement* should not be overlooked. Our manners and our culture are our proclaimers. Our manners are our colors by which we are known. They are our showing-forth; the measure by which we are judged. Manners define the quality of our conduct; they exhibit our way of deportment. Our manners should interpret civility, courteousness, decency, respectfulness, and natural dignity in work and play. Our manners are our true portraits. The manners that we possess should have the qualities of culture and refinement behind them. Culture is inherent; manners are its expression. The one is subjective, the other objective. Culture begets manners. He who has good manners is always at his ease. The mannerly find open doors.

TEMPTATION AND EVIL.

I will next remind you of the necessity of *resisting temptation* and *evil*. There is much of the negative in the world. We are often tempted to do what upon reflection our conscience will forbid. Our character and our fortitude are often sorely tested. It is easy to yield, but think of the regrets and the remorse that will surely overtake us. It may take years or a lifetime of remorse and possibly of suffering to balance a temporary wrongful gratification of the senses. We should ever remember that the penalty is certain to follow the infraction of the moral law, as effect is certain to follow cause, but we should resist evil not merely for fear of consequences but rather because the high standards and ideals we have set for ourselves prompt us to have nothing whatever to do with evil. By the fixing of high ideals and a firm determination to realize and maintain them we can shut out from our lives all evil and degradation.

SUPERIOR QUALITIES.

For *godliness, cleanliness, love, faith, hope* and *charity*, I refer you to the Scriptures of the world. We should ever bear in mind our divine origin and our

duty to our loving Father to whom we owe all our blessings. By recognizing the brotherhood of man and the Fatherhood of God we can direct the compounding and the living of our lives as our Master would have us do.

CONCLUSION.

In conclusion let me say: If you aim to be true men and women in the fulness of perfection you must be true to yourselves, true to your neighbors and true to your God. There is a power within you that is your means. Through it each one of you should strive toward a *personal nobility*. You are endowed with faculties that are capable of creating for you things that are greater than you have ever dreamed of; but they need development, training and application. There is hardly a limit to the possibility of achievement. It matters not what vocation you follow; the possibilities are the same. Start from wherever you are. Your best thoughts and actions wisely and willingly carried out will find for you the place in the ranks of men in which you can be of the greatest usefulness and service to your fellows, and that is a fortunate and beneficent destiny short of which you should not be satisfied: an earthly destiny which I most sincerely wish for all of you.

THE EARMARKS OF A GOOD EXAMINATION QUESTION.

BY C. B. JORDAN, PH.C., M.S.

The preparation of a good set of examination questions is not an easy task, and it is especially difficult for members of State Boards of Pharmacy, because they have to cover a whole subject with a few questions. The difficulty that here confronts the board members is well understood by teachers, because they are meeting it day by day in their work. The writer fully realizes the difficulty of the task and sympathizes with the one who has it to perform, therefore this article is not written for the purpose of criticising board questions, but with the hope that it may contain some helpful suggestions.

To my mind there are several requirements that a question should meet in order to be a good examination question, to wit:

1. Questions should be definite.
2. Questions should be practical.
3. Where possible they should test reasoning power rather than memory.
4. They should not be questions the true answers to which are impossible with the data given.
5. They should not be questions that can be answered by "yes" or "no," without explanation.
6. They should not suggest the answer.
7. They should not contain or imply an incorrect statement of fact.

The question should be definite: When a question is presented to a hundred different applicants, there are a hundred different minds interpreting it in a hundred different ways, if this be possible. All teachers have been surprised by incorrect interpretation of their questions by students who have been under their personal instruction and who were familiar with the ground to be covered by the examination. This is much more likely to be the case when a question is presented to applicants who are strangers to the examiner and are therefore unfamiliar with his method of asking questions and not acquainted with the ground the examiner wishes covered by the question. For this reason a question should be asked in such a way that there *can* be but *one* interpretation of it.

Here are some State Board questions that I consider indefinite:

1. " What is the specific volume of 10 pounds of sulphuric acid, specific gravity 1.8?" The examiner evidently wished the volume, but volume and specific volume are two different things and should not be confused. Yet they are often confused even in the minds of some examiners. For my part, I would be willing to omit " specific volume " from the pharmacist's vocabulary, because I feel that it has little, if any, practical value.

2. " What is the weight of 100 Cc.?" It makes a great deal of difference whether it be 100 Cc. of ether or 100 Cc. of mercury.

3. " Codeine, for what two reasons is it remarkable?" I must confess I do not know what the examiner here referred to, and I do not know where to find the answer to this question.

4. " What is uric acid a normal constituent of? Dose?" Does the examiner wish to know the dose of uric acid or of the substance of which uric acid is a normal constituent?

5. " How does the alkaloid morphine differ from other alkaloids?" An applicant could write a whole thesis in answer to this question and yet, perhaps, not hit the point the examiner may have been after.

Many more examples could be given, but I believe that these are sufficient to illustrate the point. This requirement of definiteness is violated more than any other. I believe that the reason for this is that the examiner has in mind an answer that requires a certain interpretation of his question, and it does not occur to him that any one would think of a different interpretation.

The question should be practical. This requirement permits of a great latitude of interpretation, for what one person considers practical another may consider impractical, therefore the good judgment of the examiner is at stake. Here are some board questions that I would call impractical, but all may not agree with me in this:

1. " Define and name the halogens, giving symbols and atomic weights of each. Calculate the percent of mercury in the two chlorides." I object to this question because it requires the applicant to remember the atomic weights of the elements, which I think is unreasonable.

2. " What is fortified oil and dose of same?" Fortified oil is a rare specimen in pharmacy. Ten practical druggists, old ones at that, were asked this question and not one of them had ever heard of " fortified oil." This, to me, is a good test of the practicability of a question, and this one failed to respond to the test.

3. " Moschus, what is the percent of ash not to be exceeded?" You would have to become a walking encyclopædia if you expect to be able to answer such questions. I believe that the U. S. P. or some other reference book should be used to obtain such facts when they are needed.

4. " What is an aneroid?" Easy enough to answer if you have ever used one and knew its proper name while you were using it, but how many pharmacists are familiar with one or will have an occasion to use one? There are plenty of important facts to ask for, and it seems foolish to seek out unimportant ones.

When possible, the question should test the reasoning power rather than memory. Much pharmaceutical knowledge must be gained solely by the application of the faculty of memory, and questions must be asked that appeal to this faculty only, but there are many questions that could easily be made to appeal to reasoning power as well as memory.

It is not enough that a pharmacist learn a fact; he should also be able to apply it.

Here are a few board questions that I believe could be improved upon in regard to this one point:

1. "Why make solutions of silver nitrate with distilled water?" The answer to this question can easily be learned parrot fashion. If the question had added "Explain fully your answer," the examiner could easily tell whether the applicant understood the reaction that takes place when tap-water is used.

2. "Name several good ointment bases." It is easy to learn several ointment bases, but can the applicant determine what one to use when he is asked to prepare an ointment? Had the question been stated, "Discuss the use of ointment bases from the following standpoints" (with aqueous substances, for different therapeutic effects), the applicant would be compelled to disclose his knowledge or ignorance in regard to the proper one to use.

The question should not be one the solution of which is impossible with the data given. It seems to me that this point needs no elucidation, yet many such quesions appear. Here are a few:

1. "A bottle of quinine contains how many grains?" "Nuf sed."

2. "A stock solution of 10 percent KNO_3 is to be diluted with water to make 8 fluidounces of a 4 percent solution. How much stock solution and how much water should be taken?"

3. "How much boric acid would you use to make one fluidounce of a 5 percent solution in glycerin?"

4. "Reduce 5 gallons of alcohol to 40 percent alcohol. How much water will it take and how many gallons will result?"

All of these problems are impossible to solve correctly, because the specific gravity of the resulting solution is not given. If you assume the specific gravity to be 1, they can be solved. But the specific gravity is not 1, and to me it is a dangerous precedent to permit of such errors. The doctrine of "permissible errors" is a dangerous one, as it is liable to lead to trouble, especially in the hands of a person of poor judgment.

They should not be questions that may be answered by "yes" or "no," without explanation. This requirement is obvious, for the reason that an applicant that knows nothing about pharmacy has fifty percent of a chance to answer correctly.

Here are a few such board questions:

1. "Should bay rum be made with wood-alcohol?"

2. "Would you dispense a prescription calling for 3 grammes of arsenic to be given in 10 doses?"

3. "Is bichloride of mercury a poison?"

The question should not suggest the answer. If the answer is suggested in a question, the question is valueless, so far as testing the applicant's knowledge is concerned, and this is the very purpose of all questions. To illustrate:

1. "What would you do if you received a prescription calling for a poisonous drug, the dose of which you did not know?" Look up the dose, of course.

2. "Convert 50° C. to F. and 50° F. to C. ($C \times 1.8 - 32 = F.$) ($F. - 32 \div 1.8 = C.$)"

With the above formulæ given, a sixth grader could obtain the correct result.

3. "Ethyl nitrite is very volatile. How would you preserve sweet spirit of nitre?" Why, seal the container, keep it cool, do anything that will prevent the volatile constituent from escaping. Any one would know that much from the way the question is put.

The question should not contain or imply an incorrect statement of fact. It is

a well-known rule of pedagogy that the incorrect form should never be given, even though the pupil knows that the form is incorrect, because he is liable to remember the incorrect form instead of the correct form. Some may argue that it makes an excellent " catch " question. I do not believe that " catch " questions should be asked in any examination. Any examination is not a true test of the applicant's knowledge and ability, but they are the best tests that can be given in the time devoted to it. Their efficiency, low at best, is reduced by " catch " questions. The following will illustrate the point:

1. " Give the official preparations of bryonia."

Bryonia is not official and has no official preparation.

2. " Give the official names of the chemicals represented by the following formulæ: $NaCO_3$, H_2SO_4, HNO_3, KBr, Pb_3O_4, CH_3OH, Na_2HPO_4, and NH_4Cl."

Two of these formulæ are incorrect, and the chemical represented by one of them is not official.

I know that members of our State Boards of Pharmacy try very hard to prepare good sets of questions, and, without doubt, many of us teachers could not do as well as they do. A friend of mine, a board member, once told me that he had prepared three different sets of questions for one examination and yet was not satisfied with his work, and I am sure that many others have had the same experience.

In closing, may I suggest that a good thing to do after a set is prepared is to test each question carefully by the following:

Is it definite? Is it practical? Is it correctly stated? Does it contain or imply any incorrect statement? Is it worded best to test the applicant's reasoning power as well as memory? Is it one that the applicant does not have a good chance to guess the answer to? Have all necessary data been given?

If your questions meet some such set of requirements, I feel sure they will be " passed by the board of censors."

MAKE PUPILS THINK.

Passive acceptance of the teacher's wisdom is easy to most boys and girls. It involves no effort of independent thought; it seems rational because the teacher knows more than his pupils, and it is the way to win the favor of the teacher unless he is a very exceptional man. Yet the habit of passive acceptance is a disastrous one in later life. It causes men to seek a leader, and to accept as a leader whoever is established in that position. It makes the power of churches, governments, party caucuses, and all the other organizations by which plain men are misled into supporting old systems which are harmful to the nation and to themselves. It is possible that there would not be much independence of thought, even if education did everything to encourage it; but there would certainly be more than there is at present. If the object were to make pupils think, rather than to make them accept certain conclusions, education would be conducted quite differently: there would be less rapidity of instruction, more discussion, more occasions when pupils were encouraged to express themselves, more attempt to make education concern itself with matters in which the pupils felt some interest.—Bertrand Russell in Atlantic Monthly for June: Education as a Political Institution.

HISTORY OF SUN CHOLERA MIXTURE.*

BY OTTO RAUBENHEIMER, PHAR.D.

As teacher of that fascinating subject, " History of Pharmacy," in the Department of Pharmacy of the College of Jersey City, the writer had occasion to investigate the origin of a great many galenical preparations with which the pharmacist should be familiar. For particulars of the history of Sun cholera mixture in this paper, I am indebted to Mr. Grant M. Overton, one of the editors of the New York Sun.

The Sun cholera cure and its origin were described in an article printed in The Sun, September 11, 1892, stating an interview with George Washington Busteed, of 162 East Twenty-third Street, who compounded the original prescription. It was in June, 1849, in the early days of the cholera excitement, that The Sun published the cholera mixture recipe which Busteed sent to the paper. He prepared the prescription by the advice of the Health Officer of the Port and a prominent city physician, having long known the efficacy of the ingredients. Busteed sent a copy by a messenger to Mr. Moses Y. Beach, the publisher of The Sun, asking him to print it for the " benefit of humanity," and it appeared in print the next day. The Health Commissioners adopted it and engaged Busteed to compound it for all the city hospitals.

While the plague was at its height, patients were brought into Busteed's pharmacy daily by citizens who had found them in the streets. Those attacked by the malady would often drop in their tracks. It was his good fortune to save every patient who was brought into his pharmacy. Busteed first soothed their fear and then administered The Sun cure and rubbed their bodies with hartshorn liniment. This allayed their cramps, and proper attention to diet after that brought them around all right. Cholera can be handled successfully if taken in hand promptly. The only danger is personal uncleanliness and carelessness as to diet. It was in the fall of 1849 before the epidemic ended.

The Sun republished the recipe many times during the cholera epidemics of 1855 and 1866. All told, it has been published in The Sun's columns over 1000 times, and here it is again.

ORIGINAL FORMULA.

Tincture of Opium,
Tincture of Rhubarb,
Tincture of Cayenne,
Spirit of Camphor,
Essence of Peppermint, equal parts.

Mix well.

Dose: Fifteen to thirty drops in water, to be repeated in fifteen to twenty minutes, if necessary.

This formula was included in the Preliminary Draft of a National Formulary of Unofficial Preparations at the Providence meeting of the American Pharmaceutical Association, September 7–9, 1886 (Proc. A. Ph. A., vol. 34, p. 253). The same formula is included in N.F. I (1888) and N.F. II (1896). Owing to the increase in strength of capsicum, from 5 to 10 percent in tincture of capsicum, and of rhubarb, from 10 to 20 percent in tincture of rhubarb, in U.S.P. VIII, the formula

* Read at the New Jersey Pharmaceutical Association, Long Branch, 1916.

for "Sun mixture" in N.F. III (1906) has been modified accordingly. The same formula will also survive in N.F. IV, now in print and official from September 1, 1916.

MISTURA OPII ET RHEI COMPOSITA.

Compound Mixture of Opium and Rhubarb.
Sun Cholera Mixture.

Tincture of Capsicum	100 mils
Tincture of Rhubarb	100 mils
Tincture of Opium	200 mils
Spirit of Camphor	200 mils
Spirit of Peppermint	200 mils
Alcohol, a sufficient quantity,	
To make	1000 mils

Mix and filter.
Average dose: 2 mils.

Let this story of the history of Sun cholera mixture serve as an inspiration to many pharmacists, so as to investigate and to record the origin of other galenical preparations, and thereby make historical pharmacy of practical value.

ANCIENT ROMAN METHOD OF TESTING WATER.

It is gathered from classical authors that the Romans attached great importance to certain properties in water used as sources of drinking supply, and were particular to select a soft water for this purpose. How highly these waters were esteemed is evident from the enormous labor expended on aqueducts to convey the water of the chosen spring to a distance and the pains taken to protect it from pollution during distribution. It has been noticed that the known Roman wells and the springs, which, from their Roman remains, were evidently sources of drinking water for camps or settlements, are at the present time invariably the softest water in the district. It has not been very clear what test was applied to determine the comparative degree of hardness. Some writers mention, without describing, a wine test for water. Hippocrates is slightly more explicit, stating that soft waters are distinguished from hard waters by being tinted by very small quantities of red wine. Following this clue, it is found that by adding red wine drop by drop to a given volume of water a very fair approximate determination of the temporary hardness may be obtained. Thus, 100 Cc. of rain-water is tinted pink by 1 to 2 drops of a red wine; a water with 2 degrees of hardness by 2 to 3 drops; one with 15 degrees by 9 to 10 drops; with 25 degrees, 20 to 22 drops; and so on. In other words, the coloring matter of the wine reacts as an indicator, the red color not showing until acidity is established. It is known that the Romans had a whole series of deep red wines. It is likely that some of these were used in some such list as above indicated.—A. Trillal (*Comptes rend.*, 1916, 162, 486).

BACK TO THE CHEMIST'S SHOP.*

BY C. FERDINAND NELSON, ASSOCIATE PROFESSOR OF PHYSIOLOGICAL CHEMISTRY, UNIVERSITY OF KANSAS SCHOOL OF PHARMACY.

There is something eminently proper, dignified, and altogether fitting in calling a drug store by its English title—The Chemist's Shop. That is precisely what it should be, but, sadly enough in America to-day, seldom is. When we speak of the chemist's shop, it immediately calls to mind the many struggles, trials, and hosts of associations of the past. It explains, in a measure at least, our evolution as a distinct group of men devoted to a definite calling. It shows also very clearly how intimately pharmacy and chemistry have always been associated with each other and how the two have gone hand in hand until recent years, when, with the tremendous accumulation of chemical data in numerous fields not directly associated with medicine, it has become a profession of its own already highly specialized and divided. Historically the pharmacist has a good right to be called a chemist; logically and practically that is precisely what he ought to be, at least in part, and in this capacity he should serve the community in which he lives and labors. The pity of it is that instead of anchoring ourselves to the past, and from this sure point of vantage advancing into the future, we are setting out upon a sea of pure commercialism, going we know not whither, and entirely forgetting our true place and function as professional men.

But, let us ask, can the pharmacist of to-day afford to let go of this rich heritage of the past? Should he sever all real connection with things chemical and devote himself entirely to other fields of endeavor? Is it desirable that the extreme commercialism which has already made such destructive inroads upon our retail drug practice should continue? Evolution implies growth; advancement means progress. We cannot stand still; we must either grow or decay. And there are few of us who will not be forced to admit, if we be honest with ourselves, that however keen and progressive we may be as men of business, we are miserably lacking when it comes to professional strength and development. If we would continue, therefore, to call ourselves pharmacists and professional men, we must begin a radical improvement in our methods and practice.

Many pharmacists have for years cherished as an ideal the idea of operating a drug store in which only physicians' prescriptions were compounded. It is reasoned thus: "If we could only get rid of the side lines, such as patent medicines, cigars, sundries, and the like, with which we are now burdened, but which we find absolutely necessary to keep us alive, how happy we would be. Then could we be real pharmacists. This is the goal for which we would strive." The real drug store, they would say, is the one that only compounds physicians' prescriptions and sells drugs. To them to be a prescription compounder covers all that the word pharmacist implies. Here they reach their goal; their professional ambitions are satisfied.

That this point of view is better than a purely commercialistic one is undoubtedly true; and yet we have all of us witnessed many pharmacists failing miserably because of their inability to secure an adequate patronage when attempting to conduct their business purely along these lines. A pure prescription business is undoubtedly desirable, and yet when all is said, to be only a compounder of drugs must not be the only aim of the pharmacist nor must this occupy all of his time

* Reprinted from A. J. P., June, 1916, 246.

and energy. The pharmacist who, in the future, decides to establish a business of this sort, ignoring all else, will probably meet the same fate that his brother pharmacist has in the past. If an exclusive prescription business has been impossible in the majority of instances in the past, the changing conditions of the present make a similar attempt to-day harder than ever to realize. *We must not ignore the fact that the profession of medicine is marching onward at a tremendous rate, and that the practices which pertained yesterday do not hold at all to-day.* When I was an apprentice in pharmacy, twenty odd years ago, every prescription that came into the store usually consisted of mixtures of four, six or eight ingredients. I well remember hearing my employer say this or that physician who did not prescribe a vast, complex mixture did not know very much. He was a poor doctor or he would have written a more complex prescription. But witness the change. Every year that goes by finds a decrease in the number of drugs used. Prophylactic medicine is taking its hold. We are curing diseases nowadays by keeping our bodies fit, by proper food, by pure air, by mental suggestion. The pharmacist cannot fill these prescriptions, and so the old idea of an exclusive prescription store, however desirable it may have been, must be abandoned.

To say this does not mean to say that the physician will cease to write prescriptions. On the other hand, it seems rather safe to say that as the educational requirements and professional training of the physician increase, he will progressively abandon dispensing his own medicine, as he now often does, and leave that work to the pharmacist. There will thus be more prescriptions written by different men, but in all probability each man will not write as many prescriptions as he formerly did. Physicians will not be as elaborate in the number of ingredients and variety of drugs used. There will be no need of carrying a huge stock of pressed herbs for making infusions, an endless assortment of plasters and salves, hundreds and hundreds of pills, fluidextracts, elixirs, and syrups. There will rather be a few drugs of recognized value whose strength will be carefully standardized and whose action, well known. These it will be the duty of the pharmacist to dispense.

And, again, the preparation of the few drugs the physician will use will in all probability be best carried out by the large first-class pharmaceutical houses now in existence, who have every facility for collecting, preparing, examining, and properly checking the raw and finished products, which the retail pharmacist with his little store possibly cannot have. And there should be no difficulty for us in accepting this point of view. We should not be so loath to stop making a few galenical preparations which we have heretofore considered as a mark of our professionalism. If we but consider, we will remember that one-half to three-fourths of the drugs we have always used have been made, not in our own stores, but in the larger manufacturing establishments. For example, few pharmacists have ever felt that they should make their own pepsin, pancreatin, or oil of wintergreen. Why, then, should we care if the percolators in the back rooms of our stores are not turning out a few such simple preparations as tr. arnica, tr. opium, or fluidextract of sarsaparilla? To be sure, the prospective pharmacist should be taught how these preparations are made and actually make them in his preliminary college training, just as he should also be instructed concerning all the known drugs in the materia medica, whether they are for the moment in actual use or not. But in his actual retail practice, he can well afford to abandon this time-consuming and not particularly skilful work and devote himself to the chemical and pharmacological examination of the finished products he buys. As prescription specialist, he should rather serve his customer by guaranteeing the strength and reliability of the few ingredients he puts into the prescriptions that he compounds, that incompatibilities are avoided, and that the dose is safe and accurate.

Where, then, you will say, is our field? If we cannot hope to do an exclusive prescription business, if we must even abandon the preparation of the drugs we use in our prescriptions, to manufacturing houses, are we not doing the eminently proper thing by increasing our side lines, by changing to the opposite extreme and becoming purely commercial in our methods? No! a thousand times, No. Let us rather shift our point of view; adjust ourselves to the conditions we find ourselves in; abandon some of the ideals we have had, and in their place adopt newer, better, and larger ones.

The young man who has graduated from a first-class school of pharmacy has received, in addition to his training in botany, pharmacognosy, materia medica, prescription compounding, and galenical preparations, a good training in inorganic and organic chemistry, in qualitative and quantitative analysis. He may, especially if he has elected a three- or a four-year course, even have taken one or two courses in drug analysis, bacteriology, food analysis, sanitary and water analysis. On the whole he has a more thorough training in these subjects than the physician has. He is really better fitted, therefore, to undertake analytical work along chemical and bacteriological lines than the physician, who has to devote his energies chiefly to surgery and diagnosis. Now, if the practice of medicine is becoming more simple, so far as the administration of drugs is concerned, it is becoming ten times more complex and elaborate as regards chemical and bacteriological examination of body fluids for the purpose of diagnosis. These absolute checks are increasingly being demanded by the physician who, in anticipating disease, will advise his patients that analyses of this sort be made at regular intervals rather than wait until they are actually stricken. Beginnings of this sort are seen even now in our large cities, where certain physicians are devoting themselves to doing analytical work for their colleagues rather than entering into regular practice for themselves. *The modern pharmacist could and should do this work.* He has the better chemical training, has a large store which he can use for a laboratory, has an abundant stock of chemicals and other supplies which are needed for carrying on this work. All he needs to do is to familiarize himself with the special technique of these methods, which is easily done, granting that he has the preliminary training we have spoken of. The physician, moreover, will welcome a departure of this sort on the part of the pharmacist, because he has not the time or the energy to keep adequately informed on the details of this work and would gladly turn it over to the pharmacist, did he but know that he would handle it. There is a vast amount of this diagnostic laboratory work, which awaits but the proper men to do it. Suppose, now, that the pharmacist did devote himself along these lines. Suppose he established a departure of this sort in connection with his retail practice. He could, in a short while, if he gave it proper attention, abandon selling many of the sundries which he has no interest or desire to sell. He could devote himself to this work and in addition maintain his prescription department, and this combination would give him ample field for all of his energy and in addition make him a truly professional man. To make the statements that I have made specific, I have drawn up the following list, which includes some of the analyses physicians might desire to have made in relation to their work in diagnosis. The beginnings made along these lines could be slow and modest, and as the business developed, the field could be enlarged.

Detection of tubercle bacilli in sputum.
Detection of diphtheria bacilli from throat swab.
Detection of malarial parasites.
Counting of red blood-corpuscles.

Counting of white blood-corpuscles.
Differential blood-count.
Percent of hæmoglobin.
Widal test for typhoid fever.
Wassermann test for syphilis.
Complement-fixation for gonorrhœa.
Examination of smears for gonorrhœa.
Identification of blood-stains.
Preparation of autogenous vaccines.
Preparation of sterile bandages, sterile water, and other solutions, syringes, needles, etc.
Examination of milk.
    Specific gravity.
    Reaction.
    Total protein.
    Casein.
    Fat.
    Milk-sugar.
    Detection of preservatives.
        (1) Sodium carbonate.
        (2) Salicylic acid.
        (3) Formaldehyde.
        (4) Boric acid and borax.
Hydrogen-ion concentration of urine and fæces.
Examination of gastric contents.
    Detection of free hydrochloric acid.
    Detection of butyric acid.
    Detection of acetic acid.
    Detection of pepsin.
    Detection of rennin.
    Detection of protein digestion products.
    Detection of carbohydrate digestion products.
Quantitative determination.
    (1) Of total acidity.
    (2) Free acidity.
    (3) Combined acidity.
    (4) Acidity due to organic acids and acid salts.
Urine.
    Qualitative examination.
        Specific gravity and reaction.
        Albumin.
        Sugar.
        Acetone.
        Diacetic acid.
        Indican.
    Quantitative determinations.
        Total nitrogen (Kjeldahl).
        Urea (Van Slyke's Urease Method).
        Uric acid (Folin's microchemical method).
        Chlorides.
        Dextrose (Benedict's method).
        Albumin (Folin's turbidimetric method).

There is but one drawback to our entering this profitable phase of truly professional work and that, I am sure, is none other than the pharmacist's tremendous inertia and lack of confidence when dealing with things professional, his phobia of not daring to proceed along these lines from the known to the unknown without some one to show him exactly what ought to be done and how to do it.

The work mentioned above refers only to a few of the diagnostic methods which the physician requires. But the pharmacist's possibilities in chemical and bacteriological work, if he once enters upon this field, do not by any means end here. He may, for example, in addition, devote himself to the analysis of foods and food products, milk, cream, cooking oils, fats, meats, candies, flavoring extracts—all commodities, in fact, which are used as foods, or he may make sanitary water analyses, gas analyses, iron and steel analyses, the various analyses required of him in his capacity as city chemist. The field is limited only by the energies which he chooses to put forth. *Why can we not, as a profession, begin, at least in a small measure, to abandon the selling of soda-water, cigars, sundries, paints, and ham sandwiches, for this more skilful, and more truly professional work?* Our preliminary training has been all along these lines. Why should we not make some use of the information we have spent so long a time acquiring? It is granted that the beginnings will be hard, but that should make us all the more eager to attempt them.

A SUBSTANCE COAGULATING INULIN.

The roots of chicory, and dahlia tubers, contain a substance which is an energetic coagulant of the juices extracted from these organs, and also causes the precipitation of solutions of pure inulin. Although not possessing all the characters of a diastase, this substance so far resembles these ferments that it is proposed to call it inulo-coagulase. When freshly expressed the juices of these roots quickly become turbid and soon set to a gelatinous mass, due to the action of the coagulant. If boiled, however, it loses this peculiar property, and the inulin is gradually deposited in a crystalline form. This boiled juice will often contain from 12 to 15 percent of inulin. If a few drops of the fresh unboiled juice are added to the boiled liquid it quickly coagulates. This proves that the coagulase is destroyed by boiling: but the fresh juice is very active on the inulin in boiled juice. Precipitation of the inulin, instead of coagulation, may be obtained as follows. The juice is diluted with an equal volume of water and divided into two portions. One is boiled: the other is quickly frozen, which causes the precipitation of the greater part of the inulin. It is then melted and filtered. On adding a single drop of this filtrate to 10 mils of the boiled juice a flocculent deposit of inulin is formed in 10 or 12 hours. The amount of precipitate is increased in direct proportion to the quantity of the refrigerated juice added up to a certain point. If the frozen juice is boiled, or even kept at 60° C. for 15 minutes, its coagulating power is lost. Inulo-coagulase is precipitated by alcohol in a similar manner to the diastases.—J. Wolff (*Comptes rend.*, 1916, 162, 514).

PHARMACEUTICAL FORMULAS

PROPOSED FOR A. PH. A. RECIPE BOOK

Thus far a collection of 114 Pharmaceutical Formulas has been compiled and published in THE JOURNAL, Vol. I, pp. 169, 366, 505, 637, 760 and 1307 (Feb. to Nov. 1912). Beginning with the March 1916 number these Formulas will be continued in monthly instalments by the Committee, and *all* members of the American Pharmaceutical Association are earnestly requested to render assistance by sending suitable formulas and criticisms to the Chairman,

OTTO RAUBENHEIMER, Brooklyn, N. Y.

No. 190.

UNGUENTUM ACIDI SALICYLICI.

Salicylic Acid Ointment.

B.P. 1914.

Salicylic Acid	2 Gm.
Paraffin Ointment, White	98 Gm.

Melt the ointment, add the acid, and stir until cold.

Contributed by Clarissa M. Roehr:

No. 191.

LUBRICANT.

Irish Moss	30 Gm.
Distilled Water	1000 mils

Wash the Irish moss with cold water, then place it in a double boiler and heat it for one-half hour. Strain through absorbent lint. Add sufficient phenol crystals to make the product contain 2 percent phenol. This forms a thin lubricating liquid, which is best dispensed in jars.

A thicker lubricant is made by evaporating the strained liquid about one-third and then adding the phenol. This is dispensed in collapsible tubes.

If the cost of phenol should prohibit its use, then mercuric oxycyanide can be used in its place.

Other lubricating jellies and oils, see Formulas No. 23 to No. 30, J. A. PH. A., vol. i (1912), pp. 366–368, and Formulas No. 31 and No. 32, J. A. PH. A., vol. i (1912), p. 505.

Contributed by M. I. Wilbert:

No. 192.

THIONIN STAIN.

(Martin Dupray.)

Thionin	0.5 Gm.
Phenol, crystals	2.0 Gm.
Distilled Water	100.0 mils

This solution must be prepared fresh every three or four months.

Thionin stain is used in the diagnosis of the endamœba in pyorrhœa alveolaris.

(J. A. M. A., 1916, vol. 66, p. 507.)

Contributed by James Carlton Wolf, Baltimore:

No. 193.

TINCTURA ANISI STELLATA.

Tincture of Star Anise.

Teinture de Badiane.

Star Anise	200 Gm.
Alcohol, 80 percent, a sufficient quantity,	
To make	1000 mils

Prepare by maceration or percolation. This preparation is extensively prescribed in Baltimore and dates back to the French Codex, in which there was official

Alcoolat de Badiane.

In this preparation the ground star anise was macerated during 4 days in 80 percent alcohol and then distilled on a water-bath.

Contributed by the Chairman:

DIARRHŒA MIXTURES.

The sale of these mixtures or so-called "cholera drops" has become a necessity, especially during the hot weather. However, owing to their high opium content, the Federal as well as the State laws prohibit the counter sale of the diarrhœa mixtures official in the N.F. III, two of which, namely the "Sun mixture" and Squibb's diarrhœa mixture, will be retained in N.F. IV.

The following three formulas are entirely free from opium or other narcotics, and the fourth formula contains but a mere trace, namely 0.2 percent of opium or 0.02 percent of anhydrous morphine.

No. 194.

ACID DIARRHŒA MIXTURE.

(Geo. C. Close.)

Diluted Sulphuric Acid	1 mil
Comp. Tinct. Cardamom	2 mils
Sugar	4 Gm.
Spearmint Water	11 mils

For diarrhœa: 8 mils in a wineglass of water after each movement of the bowels.

As a tonic: 4 mils 3 times a day.

(Proc. A.Ph.A., vol. 19, p. 488.)

No. 195.

TINCTURA ANTICHOLERICA.

D.M.

Aromatic Tincture	80 mils
Acetic Ether	18 mils
Oil of Peppermint	2 mils

No. 196.

TINCTURA ANTICHOLERICA BASTLERII.

D.M.

Tincture of Cinnamon	24 mils
Spirit of Ether	12 mils
Oil of Juniper Berries,	
Oil of Cajuput,	
Oil of Anise, of each	4 mils
Haller's Elixir N.F.	1 mil

No. 197.

IMPROVED CHOLERA MIXTURE.

(Raubenheimer.)

Spirit of Peppermint	200 mils
Spirit of Camphor,	
Tinct. of Capsicum,	
Tinct. of Rhubarb, of each	100 mils
Camphorated Tinct. Opium	500 mils

This preparation is only one-half the strength of "paregoric" and is therefore quite safe. The writer has used and sold these "cholera drops" for over a year with perfect satisfaction.

It seems hardly possible that the "opium habit" could be contracted from this mixture.

Contributed by William Gray, Pharmacist, Presbyterian Hospital, Chicago:

No. 198.

LABORATORY DESK STAIN.

For 75 Square Feet.

A.

Copper Sulphate	125 Gm.
Potassium Chlorate	125 Gm.
Hot Water	1000 mils

B.

Aniline Oil	120 Gm.
Hydrochloric Acid	180 Gm.
Water	1000 mils

C.

Raw Linseed Oil.

Directions: Apply in order given, 24 hours apart.

No. 199.

ELIXIR PARALDEHYDI.

Martindate & Wescott.

Saccharin	1 Gm.
Oil of Cinnamon	4 mils
Oil of Bitter Orange	8 mils
Paraldehyde	240 mils
Glycerin	240 mils
Alcohol	480 mils

Dose: 4 to 12 mils.

The present scarcity and high cost of veronal, sulphonal, trional, medinal, etc., should again revive paraldehyde as a hypnotic.

No. 200.

MISTURA PARALDEHYDI.

M. & W.

Paraldehyde	8 mils
Oil of Bitter Almond (free from HCN)	3 drops
Fluidext. of Glycyrrhiza	8 mils
Syrup	30 mils
Water, a sufficient quantity,	
To make	120 mils

Dose: 15 to 60 mils.

This mixture, in which the nauseous taste of paraldehyde is well covered, is given because alcohol and paraldehyde are physiologically incompatible.

No. 201.

SEMMOLA'S FLUID.

Sodium Iodide	8 Gm.
Sodium Phosphate	16 Gm.
Sodium Chloride	32 Gm.
Water, a sufficient quantity,	
To make	4000 mils

Given in doses of 60 mils after operations to improve elimination.

No. 202.

MISTURA FERRI CITRATIS.

(Gray.)

Soluble Ferric Citrate	32 Gm.
Citric Acid	5 Gm.
Spirit of Lemon	8 mils
Syrup	750 mils
Water, a sufficient quantity,	
To make	1000 mils

In anæmic conditions take 4 mils 3 times daily after meals. Very palatable. Keep in a cool, dark place.

No. 203.

LIQUOR POTASSII CHLORATIS AROMATICUS.

A saturated solution of Potassium Chlorate in Cinnamon Water.

This is a prescription of a very famous practitioner. Used as a mouth wash and gargle.

No. 204.

DEODORIZER FOR SICK-ROOM.

Coumarin	2 Gm.
Oil of Lavender	2 mils
Oil of Bitter Almond	4 mils
Oil of Clove	12 mils
Oil of Eucalyptus	16 mils
Oil of Patchouli	10 drops

Use as a spray. This will remove the disagreeable and sometimes unbearable odor in sick-rooms.

No. 205.

ANTISEPTIC AND ASTRINGENT MOUTH WASH.

Zinc Phenolsulphonate	60 Gm.
Liquefied Phenol	15 mils
Glycerin	120 mils
Water, a sufficient quantity,	
To make	1000 mils

As mouth wash dilute with 3 or 4 volumes of water.

Contributed by the Chairman:

MOTH PREVENTATIVES.

Being in season, the following is abstracted from a paper on "Moths," which the writer, at that time editor of the Practical Druggist, published in June, 1913, pp. 44–46, and which for particulars should be consulted.

The principal facts in mothology are: Moths seldom appear before April and they stay until August or September. They come from last season's eggs which have been deposited in any hairy or woollen article, which the mother moth has found convenient. The moth deposits from 18 to 140 minute eggs during the season on such materials, which are to furnish the larvæ with food. In from 3 to 11 days these eggs are hatched into white soft larvæ or worms, which make for themselves a comfortable case from the cloth in which they were deposited. They begin to grow and use up more of the material until the worm is at its biggest in about a month. Then it begins to wander and makes those tracks on clothing, which are so well known and heart-breaking to the housekeeper. By and by it seeks a cosy spot and fastens up the ends of its case, becomes a full size cocoon, sleeps all winter, and in the spring the winged moth emerges from the larval case. Then it finds a mate, again deposits its eggs, and the same transmutation takes place.

Above description shows that the moth itself is a harmless insect, and that the real enemies are the eggs or the larvæ. It is furthermore obvious that the usual time for attacking moths, namely, at the end of the winter, is the wrong season, and that it is much better to kill the larvæ from June to September and thereby prevent the birth of another generation. Nevertheless, it is well to apply during the spring and early summer a *moth preventative*, with the distinct understanding that such a *preventative* does not kill the moths nor the eggs. Camphor, cedar wood oil of cedar and naphthalene are such preventatives and have been used for a long time. Although the latter has been used extensively it is well to know that the French scientist Berthelot made the statement, "No one has yet produced a single moth killer by naphthalene." This subject was again studied by the French scientists Lecaillon and Audige in a confined atmosphere, who proved that its action is very slow. Owing to its high price at the present time, pharmacists should be well acquainted with this fact. Remember, *Moth Preventatives are not Moth Killers!*

Directions for Using Moth Preventatives.

Thoroughly beat, shake and brush, and in case of furs also comb the goods, and then expose them to sunlight as long as practicable. Then sprinkle the Moth Powder in between the goods, and put plenty of powder on top, in case the same is exposed to the air. It is, however, far better to place the articles in tight receptacles, as boxes, trunks, etc., so that the odor of the powder will thoroughly penetrate the goods, and that, above all, no moths can gain admittance.

MOTH POWDERS.

No. 206.
(Cracau.)

White Pepper	10 Gm.
Camphor	20 Gm.
Insect Powder,	
Naphthalene, of each	50 Gm.

No. 207.
D. M.

Capsicum	10 Gm.
Naphthalene	40 Gm.
Insect Powder	50 Gm.

No. 208.

CEDAR MOTHALINE.

Ground Cedar Wood,
Naphthalene, equal parts.

No. 209.

LAVENDER MOTHALINE.

Lavender Flowers	1 part
Naphthalene	9 parts

No. 210.

TOBACCO MOTH POWDER.

Ground Tobacco Stems,
Insect Powder, equal parts.

For a long time tobacco has been used as a moth preventative. Of course, various combinations can be formed containing tobacco, which in the shape of ground stems or other refuse can be bought in the market at little cost.

MOTH LIQUIDS.

No. 211.
(Hager.)

Camphor	25 Gm.
Naphthalene	50 Gm.
Nitrobenzol	10 mils
Denatured Alcohol	815 mils
Oil of Turpentine	1000 mils

No. 212.
(Cracau.)

Phenol	5 Gm.
Naphthalene	20 Gm.
Acetic Ether	5 mils
Denatured Alcohol	100 mils

No. 213.
D. M.

Camphor	10 Gm.
Naphthalene	40 Gm.
Capsicum	100 Gm.
Oil of Clove	10 mils
Oil of Turpentine	100 mils
Denatured Alcohol	900 mils

No. 214.
(MacEwan.)

Phenol,	
Camphor, of each	30 Gm.
Benzin	500 mils

Great care should be taken as benzin is highly inflammable and its vapors are very explosive.

For these reasons the Chairman proposes the following modification, which is comparatively safe to use.

No. 215.
(Raubenheimer.)

Phenol	10 Gm.
Camphor	30 Gm.
Carbon Tetrachloride,	
Benzin, of each	500 mils

Another formula which has given good satisfaction is the following:

No. 216.

CEDARTINE.

Oil of Cedar	50 mils
Oil of Turpentine	1000 mils

Oil of cedar is usually oil of cedar wood from *Juniperus virginiana*. A far superior article for this purpose is oil of cedar leaves from *Thuja occidentalis*.

No. 217.

PARA-DICHLORBENZOL.

This is the latest and, as per reports, a real *Moth Killer*. It is marketed both in the form of a crystalline powder and as a liquid, the vapor of which is said to kill the moths and their eggs and larvæ.

The liquid preparations are used to paint the trunks, chests or wardrobes. They can also be used as a spray directly on to the goods, providing they do not discolor them. In connection with this it should be borne in mind that alcohol will affect most of the aniline dyes, for which reason liquids containing benzin, carbon tetrachloride, oil of turpentine are preferable.

Another method to use the liquids is to saturate pieces of blotting paper and place same between the goods.

Liquids have that great advantage over the moth powders that they will dissolve the waxy coating of the eggs deposited by the moth. It is for this reason that the liquid should be sprayed directly on the infected goods with an atomizer.

A REVIEW OF CURRENT PHARMACEUTICAL LITERATURE.*

BY JOHN K. THUM.

The department of "Therapeutics" in the Journal of the American Medical Association often contains information and comments about advances made in medicine that should be, and are, of interest to pharmacists. In the last few years much has been written about the cardiac tonics, particularly digitalis and, to some extent, strophanthus. Any new facts that are brought out concerning these drugs, and preparations of these drugs, that are backed up by animal experimentation must appeal to the conscientious physician and should, of necessity, be of interest to the wide-awake pharmacist. Much of this work has been done by Hatcher and Eggleston. Concerning some of their more recent work "Therapeutics" has this to say, and, as we are just now passing through a period of "fat-free" digitalis agitation which hits the medical profession every now and then, this comment is peculiarly appropriate:

"Several years ago Hatcher and Eggleston investigated the emetic action of digitalis. Their results showed that the digitalis bodies produce nausea and vomiting through action on the vomiting centre in the medulla. The direct action of therapeutic doses of these drugs on the gastric mucous membrane is unimportant. The fixed oil or fat from digitalis, to which the emetic properties are sometimes attributed, was given to cats in large doses without producing any symptoms whatever. It is clear, therefore, that efforts to avoid nausea by removal of the oil, administration through other channels than the stomach, or any other means than regulation of the dose, must prove unavailing. It might naturally have been expected that the same conclusions would apply to strophanthus preparations, especially as no satisfactory evidence has been presented in support of the claim that the oil present in tincture of strophanthus helps to produce the nausea which sometimes occurs after its use. Hatcher has performed experiments with oil of strophanthus which show that this assumption is justified. He finds that the average therapeutic dose of the tincture of strophanthus contains less than one ten-thousandth part of that required to produce nausea and vomiting in the cat, relative to the weight. While removal of the oil renders the tincture more 'elegant' pharmaceutically, such removal is of no therapeutic importance." (J. A. M. A., Apr. 15, 1916, p. 1199).

THE STANDARDIZATION OF DIGITALIS AND THE POTENCY OF AMERICAN-GROWN DIGITALIS.—A comparison of American-grown digitalis leaves with those obtained from other sources showed that it is possible to grow leaves of a very high quality in this country. This was proved by biological determination. The experimenters worked with an infusion of the leaves and used Hatcher's "cat" method of standardization in preference to the so-called "frog" method. In their opinion, the latter method is less reliable than the former. It will be remembered that the "cat" method is comparatively simple and consists in determining the minimal fatal dose per kilogramme weight of cat, the drug being injected slowly into the femoral vein. They agree with Hatcher that the infusion does not deteriorate as rapidly as commonly believed; they also make the statement that there are differences in activity due to the method of preparation; they also believe that we have in America a digitalis that cannot be surpassed. They also make the statement that "the name of this or that firm does not always insure potency or digitalis effect." Altogether this is a most valuable paper and a distinct contribution to the positive knowledge concerning digitalis that is gradually being added to the literature of this well-known drug. (J. A. M. A., March 18, 1916, by L. G. Rowntree, M.D., and D. I. Macht, M.D.)

DIGITALIS STANDARDIZATION. THE PHYSIOLOGICAL EVALUATION OF FAT-FREE DIGITALIS AND COMMERCIAL DIGITALIN.—In an endeavor to discover the activity of some commercial preparations of fat-free digitalis and German digitalin the following conclusions were drawn: The biological determination was carried out by the one-hour frog method. This method was selected because it is generally conceded that the various factors which must be considered in this method of assay are kept uniform. Absorption from the lymph system of the frog was found to be variable and to depend somewhat on the temperature at which the frogs were kept while assayed. A variation of over 250 percent was discovered in 13 samples of commercial fat-free digitalis and 150 percent in five samples of commercial digitalin (German). There is no difference in the qualitative effects of fat-free digitalis

* Read at the Philadelphia Branch A. Ph. A., May meeting.

on the dog as compared to those produced by the official tincture; and the difference in the absorption between these two different tinctures from the lymph system of the frog is so slight as to be unworthy of notice. Some of the samples of fat-free digitalis showed considerable deterioration after being kept under ordinary conditions for a period of from five to seven months. It is suggested that manufacturers adopt a uniform method of assay and a standard of activity. Only thus can physicians get uniformity, which they have a right to expect when they prescribe commercial preparations of digitalis. In view of the rapid deterioration of commercial preparations of fat-free digitalis it is deemed advisable that such preparations be dated, so that physicians have some means of knowing how old a preparation is they are prescribing for their patients. (Hyg. Lab. Bull. No. 102, by George B. Roth, M.D.)

Federal Standards for Mineral Waters.—In no other country in the whole world is there such a large sale and consumption of mineral waters as in these United States. Recognizing this fact and the belief that the public has, generally speaking, of taking the purity of these waters for granted, the government has, through the activity of the Public Health Service, adopted the following standards. The authorities believe that these requirements are not too stringent to apply to waters that are imported from abroad.

1. The total number of bacteria developing on standard agar plates, incubated 24 hours at 70° C., shall not exceed 100 per cubic centimetre; provided that the estimate shall be made from not less than two plates, showing such numbers and distribution of colonies as to indicate that the estimate is reliable and accurate.

2. Not more than one out of five 10-mil portions of any sample examined shall show the presence of organisms of the *Bacillus coli* group.

It seems that the Bureau of Chemistry has been giving this matter of the purity of these waters considerable investigation for some years, and the above standards are the result of its investigations. Thus mineral and table waters that are offered for sale in interstate commerce are required to conform to these standards.

Medical, Scientific, Educational and Philanthropic Institutions Not to be Affected by Fixed Price Legislation.—Senator Ashurst, of Arizona, has introduced a bill into the Senate which provides that a grower, producer, manufacturer, or owner of an article having a trade-mark or special brand, who sells it to a dealer or retailer, can designate and prescribe the price at which it shall be resold, the object, of course, being to prevent the cutting of prices. In this bill, however, it is expressly provided that the act shall not apply in cases of sales of such articles to any society or institution established solely for educational, medical, scientific, or philanthropic purposes. (Jour. A. M. A., March 25, 1916, p. 67.)

Magnesium Hypochlorite as a Disinfectant.—The advantages claimed for this chemical over other hypochlorites as a disinfectant and germicide are that it is more powerful as a disinfectant and at the same time less caustic. It is also much cheaper; other things being equal, this is a desideratum not to be ignored. It is prepared for use by dissolving 190 grammes of magnesium sulphate in 2 litres of water and mixing this with 2 litres of water into which 100 grammes of chlorinated lime have been well stirred. The two solutions are first filtered before mixing; the resulting precipitate is allowed to subside and the clear supernatant liquid, preferably filtered, is then ready for use. This can be used freely as a dressing, as it has no untoward action on the healthy tissues. It is asserted that the organism bears the magnesium well—in fact, much better than can be said of either lime or sodium. (Jour. A. M. A., March 25, 1916, from the Paris Médicale, Feb. 19, vi, No. 8, p. 197, by C. Mayer.)

The Therapeutic Value of the Hypophosphites.—In order to be classed as a useful drug it is necessary that a drug be able to accomplish one of three things: (1) It must have either a local or a physiological action; (2) it must show a particular influence on pathological processes, and (3) it must have food value. After a brief review of the literature pertaining to the hypophosphites the writer of this paper adduces evidence, both of a clinical nature and the study of the effect, or lack of effect, of this drug on animals. The conclusions are that the hypophosphites as a source of phosphorus for the body are without value. No evidence is adduced showing that they have any physiologic effect; that they have any influence on pathologic processes; that they have any value as a food. The author tersely adds: "If they are of any use, that use has never been discovered." (Jour. A. M. A., Feb. 12, 1916, p. 488, by W. McKim Marriott, M.D.)

REPORTS OF COMMITTEES

REPORT OF THE COMMITTEE ON PHYSIOLOGICAL TESTING.*

The members of the Committee were not appointed until May, and the time elapsing before the annual meeting was so short that it was thought best to consider by correspondence what might be done during the coming year, rather than to start laboratory work and not be able to complete it. In view of the fact that so much time is required for laboratory work, it seems to us wise to recommend that the re-appointment of this Committee, or the appointment of a new Committee, should be made at the annual meeting or very soon thereafter, in order that any studies which it is thought advisable to take up may be started early and continued through the year and brought to a successful close, in time for the annual report.

We are informed that the United States Pharmacopœial Revision Committee will shortly report on the subject of Physiological Testing. It would seem to us that a study of whatever of such tests as may be adopted or recommended, and particularly as to their applicability to commercial testing, would be of much interest to this Association.

In connection with any method of physiological assay of the Heart Tonics of the Digitalis Series that may be adopted, it seems desirable, in order to get uniform, practical results, to investigate the following factors, assuming that some form of the frog method will be selected:

(*a*) What is the best means of collecting and storing frogs. (*b*) How is the accuracy of the assay method influenced by: moisture; temperature; light; rapidity of absorption; percentage of alcohol and other diluting fluids; concentration and size of dose; most suitable temperature and other conditions for carrying out the tests, etc.

Every effort should be made to reconcile the variations in technic employed in the different laboratories, in order to devise such technic as will give uniform and practical results.

Cannot preparations of aconite be assayed more accurately by the chemical than by a physiological method?

On account of the growing importance of the products of the pituitary gland as oxytocic agents, consideration of the best method of assaying such products or active principle or principles should be given attention.

We may briefly report that the following is a synopsis of the work that has been published on the subject of Physiological Testing in this country and abroad during the past year:

Sollman, Mendenhall and Stingel. The Influence of Temperature and Concentration on the Quantitative Reaction of the Heart to Ouabain.

Journal Pharmacology and Exper. Therapeutics, vol. vi, May, 1915.

The authors find both these factors to influence the toxicity of ouabain to frogs, particularly the former. At 15° C. the M. L. D. of ouabain is six times as great as at 26° C.

Pittenger, Paul S. A New Pharmacodynamic Assay Method. JOURNAL A. PH. A., vol. iv, April, 1914.

Gold fish are suggested as test animals for the assay of the Digitalis Series of Heart Tonics. Weight can be ignored; individual variations are only slight: temperature and concentration are the two most important factors.

Hamilton and Rowe. What is the Best End-Point in the Frog Heart Method for Digitalis? JOURNAL A. PH. A., vol. iv, 1915, p. 108.

The authors submit data from which they conclude that ultimate death is a more distinct end-point than systolic stand-still in one hour and is less affected by variable factors.

Hamilton, H. C. Cannabis Sativa. Is the Medicinal Value Found Only in the Indian Grown Drug? JOURNAL A. PH. A., vol. iv, April, 1915.

The author brings forward no new experiments, but comments on the previous experiments of himself and others, criticizes the conclusions of Eckler and Miller and concludes

* Scientific Section, San Francisco meeting.

that the American grown drug contains the active constituent, but that in most experiments the same care is not exercised in selecting the part corresponding to the official drug.

Roth, George B. Pituitary Standardization. A Comparison of the Physiological Activity of Some Commercial Pituitary Preparations. Hygienic Laboratory Bulletin, No. 100.

The author claims that the use of the excised uterus muscle from a virgin guinea-pig is the most sensitive and accurate method available for standardization purposes.

Of the various preparations tested, only those from two manufacturers had the same uniformly high activity.

Focke. Further Steps in the Standardization of Official Digitalis Preparations. Zeitschrift f. exp. Path. u. Therapie, vol. xvi, 1914, p. 443.

The author finds equally valuable the one-hour or the short-time variations of the frog heart method for digitalis.

He states that, for the purpose of assaying the leaves, it is unnecessary to exhaust with alcohol; an infusion with weak alkali extracts them more readily and is most rapidly absorbed by the test animal.

Gottlieb, R. The Method for Assaying Digitalis Preparations on Frogs. Münch. Med. Woch., vol. lxi, 1914, p. 813.

The author reviews the various methods and modifications proposed and dwells particularly on the difficulties due to the variable susceptibilities of the frog. This he finds to be seasonal and individual, modified by temperature.

He concludes that, because of the many sources of error, very considerable experience is necessary before uniform results may be expected from the use of any method.

Gunn, John W. C. The Influence of Temperature on the Action of Strophanthin on the Mammalian Heart. Journal of Pharmacology and Exper. Therapeutics, vol. xvi, Sept., 1914, p. 39.

The author concludes that on the isolated rabbit's heart strophanthin acts more quickly as the temperature rises, probably because the rate of flow through the coronary vessels is more rapid.

Haskell, C. C. The Influence of Temperature on the Results Secured by Houghton's Method of Assay for the Heart Tonics. Lilly Sc. Bulletin, vol. i, pp. 199–201.

The author found that this factor materially affects the M. L. D., the dose at 18° C. being about twice as great as at 25°–30° C.

Pilcher and Sollman. The Action of Ergot and Its Constituents on the Vasomotor Centre. Journal of Pharmacology and Exper. Therapeutics, vol. xvi, June, 1915, p. 385.

The authors conclude that these have no effect on the vasomotor centre, the rise in pressure following an injection being due to peripheral stimulation.

Vanderkleed and Pittenger. Variation in the Susceptibility of the Guinea-pig. JOURNAL A. PH. A., vol. iii, 1915, p. 815.

The authors find a variation of less than 20 percent between the extremes of minimum lethal doses for the Digitalis Series on guinea-pigs.

They conclude that the use of guinea-pigs for standardization of these drugs is the simplest and most satisfactory, eliminating the standardization of the test animal.

Haskell, C. C. The Physiological Activity of Ergotin and Powdered Extract of Ergot. JOURNAL A. PH. A., vol. iii, 1914, p. 786.

The author finds that both these preparations cause bluing of the cock's comb and contain practically all of the pressor activity of the crude drug.

Haskell and Miller. Influence of Heat and Method of Storing upon the Potency of Digitalis Leaves. JOURNAL A. PH. A., vol. iii, 1914, pp. 306–308.

The authors find that in a year these factors do not affect the activity of the drug.

Crawford, A. C. The Cock's-Comb Test for the Activity of Ergot Preparations. Journal Alumni College Phys. and Surg., Baltimore, vol. xvii, 1914–1915, pp. 4–14.

CHAS. R. ECKLER,
PAUL S. PITTENGER,
E. M. HOUGHTON, *Chairman.*

REPORT OF THE SPECIAL COMMITTEE ON REGULATIONS FOR TRANSPORTATION OF DRUGS BY MAIL.*

At the annual meeting held in Detroit in August of last year (1914), the Committee on Post Office Regulations for the Mailing of Poisons made a full report on the situation, taking up the causes of the unfortunate position in which we find ourselves and setting forth at length the laws and regulations governing, or rather preventing, the mailing of poisons. See JOURNAL AMERICAN PHARMACEUTICAL ASSOCIATION, February, 1915. The Committee's report was heard and accepted, and the Committee itself discharged. It was evident, however, that work of this kind, to be of value, must be continuing, and some weeks after the August meeting the Committee, slightly rearranged, was reappointed. It is now known as the Special Committee on Regulations for Transportation of Drugs by Mail.

The situation as depicted in our last previous report remains unchanged to-day, no new laws having been passed and no new regulations having been promulgated. It is still illegal to send poisons through the mails, even though they can be packaged in such a way as to make them safe for all that handle them. It is a daily occurrence that small parcels containing poisons must be handled by express and usually at greater expense, merely because we forbid ourselves the use of our parcel post. The express companies handle the packages with entire safety, both as to their employees and as to the goods. In the meantime our Post Office Department in Washington, instead of being allowed to increase its usefulness, is issuing statements showing millions of expense beyond its receipts.

It has been suggested by some that each individual take the subject up with his postmaster, urging an extension of the parcel post so that poisons may be handled through the mails. It might stimulate the Post Office Department to a closer consideration of the subject, if it were brought to the attention of the Department constantly by the postmasters themselves. If it were taken up on the basis of an extension of the parcel post, as well as a needed added facility in the drug business, it would perhaps be of value.

Your Chairman, who is writing this report because he feels it is only a report of progress, expresses the view of the Committee, as shown by correspondence, that two fields are open to us, and both must be cultivated. First, we must continue to voice our disapproval of present conditions, as we do from time to time, and second, exert our influence to secure the passage of a national poison law especially drawn to regulate interstate commerce in poisons. Handling poisons in the mails will naturally follow the enactment of such a law.

The Committee has made a study of the above two fields of operation during the year, and has noted with interest the attention that other bodies also are giving to the subject. It is therefore suggested that the work of the Committee be carried on through the coming year or years, recognizing at once that the work is likely to be lengthy. The Chairman would be glad to suggest one or two more names to add to the membership of the Committee.

Respectfully submitted,

B. L. MURRAY, *Chairman.*

Read in full by E. L. Newcomb. Report received to take usual course, moved to adopt Mr. Murray's suggestion that Committee be increased by two names to be suggested by Mr. Murray. August 12, 1915.

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* Section on Education and Legislation, San Francisco meeting.

REPORT OF THE TREASURER OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

JANUARY 1, 1915, to JANUARY 1, 1916.

Receipts.

Cash on hand, January 1, 1915			$1521 47
Annual dues and Journal, 1913 (July 1, 1913, to Jan. 1, 1914)	$2 50		
Annual dues and Journal, 1914 (Jan. 1, 1914, to Jan. 1, 1915)	275 00		
Annual dues and Journal, 1915 (Jan. 1, 1915, to Jan. 1, 1916)	8740 00		
Annual dues and Journal, 1916 (Jan. 1, 1916, to Jan. 1, 1917)	2170 00	$11,187 50	
Dues only of the A. Ph. A., 1915 (Jan. 1, 1915, to Jan. 1, 1916)		52 00	
Miscellaneous dues of the A. Ph. A.		9 25	
1 parchment Certificate of Membership @ $5 00	5 00		
4 paper Certificates of Membership @ $3 00	12 00	17 00	
National Formulary (III)		1524 98	
Gold Membership Badges and Bars		61 50	
Proceedings		131 02	
Journal Advertising		3467 45	
Journal Subscriptions		152 88	
Miscellaneous		119 45	
Interest on St. Louis Bonds in Current Fund	400 00		
Interest on deposit in International Bank of St. Louis	156 60	556 60	
Bank exchange paid with dues		1 15	
Bound volumes of Journal		4 00	
Reprints of Journal		12 50	
Sale of 34 gold Membership Buttons @ $1 00	34 00		
Sale of 66 plated Membership Buttons @ 25 cents	16 50		
Sale of 35 plated Membership Pins @ 25 cents	8 75	59 25	
Centennial Fund (Interest on Massachusetts State Bonds)	30 00		
Centennial Fund (Deposited for Disbursement. Edward Kremers)	100 00		
Life Membership Fund (Interest on Massachusetts State Bonds)	390 00		
Ebert Prize Fund (Deposited for Disbursement. E. N. Gathercoal)	40 00	560 00	
Ebert Legacy Fund (Interest on Bonds)	80 00		
Ebert Legacy Fund (Deposited for Disbursement)	18 53		
Ebert Legacy Fund (Sale of Lot in Winnetka, Illinois)	500 00		
Ebert Legacy Fund (Reimbursed for expenses paid on Lot after sold)	119 81	718 34	

St. Louis International Bank Interest on Funds, from January 1, 1915, to January 1, 1916.

Ebert Legacy Fund	$40 35		
Procter Monument Fund	77 60		
Rice Memorial Fund	2 35	120 30	18,755 17
Total			$20,276 64

Disbursements by Voucher Checks.

Jan.	5.	Check	2452	W. B. Day, clerical expenses	$32 00	
				Membership	5 00	
				Printing, postage and stationery	26 62	
				National Formulary (III)	1 44	
				Freight, express and drayage	5 12	
				Miscellaneous	4 00	$74 18
"	5.	"	2453	B. R. Christian, freight, express and drayage		10 00
"	5.	"	2454	W. T. Robinson, membership	3 50	
				Printing, postage and stationery	2 25	5 75
"	23.	"	2455	Louis C. Hesse, printing, postage and stationery		9 00
"	23.	"	2456	Stoneman Press Co., printing, postage and stationery	3 00	
				Journal (a)	475 46	478 46
"	23.	"	2457	Bucher Engraving & Mfg. Co., Journal (a)		20 25
"	23.	"	2458	Ernest C. Marshall, salaries		187 50
"	23.	"	2459	Ernest C. Marshall, clerical expenses	60 00	
				Printing, postage and stationery	5 00	
				Journal (a)	17 88	82 88
"	24.	"	2460	W. T. Robinson, membership	15 50	
				Printing, postage and stationery	8 50	24 00
"	24.	"	2461	Louis C. Hesse, printing, postage and stationery		13 75
"	24.	"	2462	W. T. Robinson, membership		34 50
Feb.	6.	"	2463	George Wirsing, printing, postage and stationery		15 00
"	6.	"	2464	George M. Beringer, Committee on Unofficial Standards		22 47
"	6.	"	2465	Title Guaranty Trust Co., miscellaneous		5 00
"	6.	"	2466	E. F. Greathead, printing, postage and stationery		11 90
"	6.	"	2467	W. B. Day, clerical expenses	40 00	
				National Formulary (III)	1 89	
				Membership	2 36	
				Printing, postage and stationery	10 00	
				Miscellaneous	3 85	58 10
Feb.	12.	"	2468	Wm. A. Hall, membership		57 00
"	12.	"	2469	Ohio State Telephone Co., Journal (d)		10 00
"	12.	"	2470	Bucher Engraving & Mfg. Co., Journal (a)		25 88
"	12.	"	2471	E. C. Marshall, salaries		187 50
"	12.	"	2472	E. C. Marshall, Journal (b)	75 00	
				" (c)	2 00	
				" (d)	1 11	78 11
"	12.	"	2473	Stoneman Press Co., Journal (a)	443 93	
				" (c)	3 00	
				Membership	10 00	456 93
"	12.	"	2474	Henry M. Whelpley, printing, postage and stationery	69 10	
				Miscellaneous	17 05	86 15
"	20.	"	2475	W. T. Robinson, membership	3 50	3 50
"	20.	"	2476	Louis C. Hesse, printing, postage and stationery		6 75

March	2.	Check	2477	W. T. Robinson, membership		$14 50
"	10.	"	2478	W. B. Day, clerical expenses	$32 00	
				Printing, postage and stationery	32 00	
				Membership	4 92	
				National Formulary (III)	1 66	
				Miscellaneous	1 08	
				Journal for Reporter on Prog. of Ph.	19 35	91 01
"	13.	"	2479	Bucher Engraving & Mfg. Co., Journal (a)		11 63
"	13.	"	2480	Hammond Typewriter Co., Journal (d)		1 50
"	13.	"	2481	Stoneman Press Co., Journal (a)		402 80
"	13.	"	2482	E. C. Marshall, salaries		187 50
"	13.	"	2483	E. C. Marshall, Journal (b)	53 33	
				" (c)	29 90	83 23
"	16.	"	2484	A. J. Eggers, Education and Legislation		4 75
April	10.	"	2485	W. T. Robinson, membership		5 50
"	10.	"	2486	Louis C. Hesse, printing, postage and stationery		2 75
"	10.	"	2487	J. B. Lippincott Company, National Formulary (IV)		25 00
"	10.	"	2488	W. T. Robinson, membership		9 00
"	10.	"	2489	Louis C. Hesse, printing, postage and stationery		2 75
"	10.	"	2490	H. M. Whelpley, printing, postage and stationery	25 05	
				Miscellaneous	5 75	30 80
"	10.	"	2491	W. B. Day, clerical	32 00	
				Membership	2 33	
				National Formulary (III)	3 00	
				Printing, postage and stationery	10 00	
				Miscellaneous	6 55	53 88
"	10.	"	2492	J. H. Beal, printing, postage and stationery	12 65	
				Miscellaneous	12 33	24 98
"	13.	"	2493	Wickersham Printing Co., National Formulary (III)		62 27
"	13.	"	2494	Louis C. Hesse, printing, postage and stationery		5 75
"	13.	"	2495	Wm. B. Day, travelling expenses		19 00
"	13.	"	2496	Bucher Engraving & Mfg. Co., Journal (a)		8 92
"	13.	"	2497	Stoneman Press Co., Journal (a)	464 22	
				" (c)	5 00	469 22
"	13.	"	2498	Ernest C. Marshall, salaries		187 50
"	13.	"	2499	Ernest C. Marshall, Journal (b)	67 50	
				" (c)	20 03	
				" (d)	6 20	93 73
"	21.	"	2500	Ernest C. Marshall, Journal (d)		12 00
"	21.	"	2501	E. L. Newcomb, Secretary, membership		16 00
May	10.	"	2502	E. F. Greathead, printing, postage and stationery		11 90
"	10.	"	2503	Stoneman Press Co., Women's Section		12 50
"	10.	"	2504	W. B. Day, printing, postage and stationery	5 00	
				Clerical	40 00	
				National Formulary (III)	5 45	
				Miscellaneous	4 91	55 36

May	14.	Check	2505	J. W. England, printing, postage and stationery	$40 80	
				Miscellaneous	2 46	$43 26
"	14.	"	2506	W. T. Robinson, Year-Book		3 50
"	14.	"	2507	Ernest C. Marshall, salaries		187 50
"	31.	"	2508	A. J. Eggers & Co., Education and Legislation		3 00
"	19.	"	2509	Bucher Engraving & Mfg. Co., Journal (a)		14 30
"	19.	"	2510	Stoneman Press Co., Journal (a)	403 93	
				" (c)	26 05	429 98
"	19.	"	2511	E. G. Eberle, salaries		291 67
"	19.	"	2512	E. G. Eberle, Journal (b)	45 00	
				" (c)	25 44	
				" (d)	1 00	71 44
June	8.	"	2513	George M. Beringer, Unofficial Standards		23 27
"	8.	"	2514	A. J. Eggers & Co., Section on Commercial Interests		6 00
"	8.	"	2515	(Cancelled)		
"	8.	"	2516	C. A. Apmeyer, membership		27 00
"	8.	"	2517	Wm. B. Day, clerical	32 00	
				National Formulary (III)	2 18	
				Miscellaneous	2 16	
				Year-Book No. 2	1 35	37 69
"	17.	"	2518	W. T. Robinson, printing, postage and stationery		8 50
"	17.	"	2519	Whitehead & Hoag Co., buttons and pins		47 18
"	17.	"	2520	E. G. Eberle, salaries		291 67
"	17.	"	2521	Stoneman Press Co., Journal (a)	428 11	
				" (c)	2 39	430 50
"	17.	"	2522	E. G. Eberle, Journal (a)	3 05	
				" (b)	30 00	
				" (c)	38 76	
				" (d)	1 22	73 03
"	17.	"	2523	Louis C. Hesse, printing, postage and stationery		5 75
July	9.	"	2524	H. M. Whelpley, printing, postage and stationery	49 80	
				Miscellaneous	10 40	60 20
"	9.	"	2525	H. M. Whelpley, salaries		500 00
"	9.	"	2526	E. F. Greathead, printing, postage and stationery		6 90
"	9.	"	2527	W. T. Robinson, printing, postage and stationery		14 50
"	9.	"	2528	E. G. Eberle, Journal (b)		30 00
"	9.	"	2529	John Simpson, Journal (a)		24 50
"	9.	"	2530	C. Lewis Diehl, salaries		600 00
"	9.	"	2531	W. B. Day, salaries		375 00
"	9.	"	2532	J. W. England, salaries		150 00
	9	"	2533	H. K. Myers, National Formulary (IV)		2 75
"	9.	"	2534	W. B. Day, printing, postage and stationery	16 00	
				Clerical	32 00	
				National Formulary (III)	2 64	
				Miscellaneous	5 21	
				Year-Book No. 2	1 02	56 87
"	12.	"	2535	Cullom & Gehertner, membership		17 50
"	12.	"	2536	E. F. Greathead, printing, postage and stationery		4 00

Aug.	4	Check	2537	E. F. Greathead, printing, postage and stationery			$11 90
"	4.	"	2538	Edsel A. Ruddiman, membership			8 40
"	4	"	2539	E. G. Eberle, Journal (b)		$60 00	
				" (c)		31 26	
				" (d)		87	92 13
"	4.	"	2540	E. G. Eberle, salaries			291 67
"	4.	"	2541	Stoneman Press Co., Journal (a)			373 62
"	4.	"	2542	Wm. K. Martin, Journal (b)			5 00
"	4.	"	2543	P. H. Utech, membership			3 40
"	4.	"	2544	Louis C. Hesse, printing, postage and stationery			38 50
"	4.	"	2545	Norbert Mueller, from Centennial Fund for Research Work on Medicinal Plants, etc.			33 33
"	4.	"	2546	J. H. Beal, printing, postage and stationery			2 00
"	4.	"	2547	A. H. Fetting, badges and bars			18 00
"	4.	"	2548	H. M. Whelpley, printing, postage and stationery		34 18	
				Miscellaneous		4 00	
				Express		22	38 40
"	24.	"	2549	Wm. B. Day, printing, postage and stationery		5 00	
				Clerical		40 00	
				National Formulary (III)		1 79	
				Miscellaneous		2 50	
				Year-Book No. 2		30	49 59
"	24.	"	2550	E. G. Eberle, salaries			291 67
"	24.	"	2551	Geo. M. Beringer, Unofficial Standards			15 40
"	24.	"	2552	Thos. F. Main, printing, postage and stationery			12 61
"	24.	"	2553	Stoneman Press Co., Journal (a)			401 84
"	24.	"	2554	E. G. Eberle, Journal (a)		8 00	
				" (b)		60 00	
				" (c)		9 15	
				" (d)		1 62	78 77
Sept.	3.	"	2555	J. W. England, printing, postage and stationery			13 96
"	3.	"	2556	Louis C. Hesse, certificates			21 25
"	3.	"	2557	Norbert Mueller, Centennial Fund (for Research Work on Medicinal Plants, etc.)			33 33
"	3.	"	2558	Wickersham Printing Co., National Formulary (III)			136 15
"	3.	"	2559	H. M. Whelpley, printing, postage and stationery		22 00	
				Miscellaneous		9 70	31 70
"	3.	"	2560	Wm. B. Day, printing, postage and stationery		5 00	
				Clerical		32 00	
				National Formulary (III)		34	
				Miscellaneous		4 98	
				Express		5 35	47 67
"	3.	"	2561	The Ten Bosch Co., printing, postage and stationery			77 50
"	9.	"	2562	Louis C. Hesse, printing, postage and stationery			6 25

Sept.	9.	Check	2563	E. K. Thiesing, Section on Commercial Interests			$11 50
"	10.	"	2564	H. Engelhardt, Section on Scientific Papers			18 82
"	10.	"	2565	J. W. England, travelling expenses			175 00
"	10.	"	2566	Wm. B. Day, travelling expenses			129 50
"	14.	"	2567	C. Lewis Diehl, National Formulary (Honorarium) (IV)			500 00
"	14.	"	2568	E. G. Eberle, travelling expenses			137 50
"	14.	"	2569	E. G. Eberle, salaries			291 67
"	14.	"	2570	E. G. Eberle, Journal (a)	$15 40		
				" (b)	60 00		
				" (c)	16 18		91 58
"	14.	"	2571	Stoneman Press Co., Journal (a)			384 87
"	14.	"	2572	Louis C. Hesse, printing, postage and stationery			4 50
"	14.	"	2573	Reeves Printing Co., printing, postage and stationery			6 00
"	20.	"	2574	C. Lewis Diehl, salaries			200 00
"	20.	"	2575	E. N. Gathercoal, Ebert Prize Fund			40 00
"	20.	"	2576	C. Lewis Diehl, National Formulary (IV)	22 19		
				Year-Book	2 36		
				Journal for Reporter on Prog. of Ph.	2 54		27 09
"	20.	"	2577	National Committee on Pharmaceutical Syllabus			25 00
"	20.	"	2578	Buxton & Skinner, printing, postage and stationery			2 00
"	20.	"	2579	W. T. Robinson, printing, postage and stationery			31 50
"	20.	"	2580	Fidelity & Deposit Co. of Md., Premium on Treasurer's Bond			37 50
"	24.	"	2581	E. N. Gathercoal, membership			15 00
"	24.	"	2582	H. M. Whelpley, travelling expenses	139 50		
				Miscellaneous	1 37		140 87
"	29.	"	2583	A. H. Fetting, badges and bars			15 00
"	29.	"	2584	E. F. Greathead, printing, postage and stationery			23 80
"	29.	"	2585	Lehnhardt & Co., stenographers			395 15
Oct.	4.	"	2586	Louis C. Hesse, printing, postage and stationery			2 75
"	4.	"	2587	J. H. Beal, printing, postage and stationery			5 00
"	7.	"	2588	Wm. B. Day, printing, postage and stationery	81 00		
				Clerical	32 00		
				National Formulary (III)	3 23		
				Miscellaneous	15 60		
				Express	5 91		
				Year-Book No. 2	2 22		139 96
"	11.	"	2589	Eschenbach Printing Co., Year-Book No. 2			2500 00
"	11.	"	2590	Louis C. Hesse, printing, postage and stationery			4 50
"	11.	"	2591	E. G. Eberle, salaries	291 67		
				Journal (a)	9 55		
				" (b)	60 00		
				" (c)	27 42		388 64
"	11.	"	2592	A. J. Eggers & Co., Education and Legislation			9 50

Oct.	11.	Check	2593	Eschenbach Printing Co., printing, postage and stationery	$54 50	
				Freight, express and drayage	2 81	$57 31
"	11.	"	2594	E. F. Greathead, printing, postage and stationery		6 90
"	11.	"	2595	H. M. Whelpley, printing, postage and stationery	43 20	
				Miscellaneous	2 70	45 90
"	11.	"	2596	Stoneman Press Co., Journal (a)		417 55
"	18.	"	2597	Louis C. Hesse, printing, postage and stationery		10 00
"	25.	"	2598	Louis C. Hesse, printing, postage and stationery		4 25
"	27.	"	2599	Louis C. Hesse, printing, postage and stationery		6 75
Nov.	3.	"	2600	John Block, certificates		5 00
"	6.	"	2601	Norbert Mueller, Centennial Fund (for Research Work on Medicinal Plants, etc.)		33 34
"	6.	"	2602	Buxton & Skinner, printing, postage and stationery		12 10
"	6.	"	2603	Louis C. Hesse, printing, postage and stationery		1 50
"	6.	"	2604	W. B. Day, printing, postage and stationery	1 95	
				Clerical	40 00	
				National Formulary (III)	1 62	
				Miscellaneous	90	
				Express	4 02	
				Badges and bars	60	49 09
"	6.	"	2605	W. T. Robinson, printing, postage and stationery		5 00
"	10.	"	2606	Title Guaranty Trust Co., miscellaneous		5 00
"	10.	"	2607	E. F. Greathead, printing, postage and stationery		11 90
"	15.	"	2608	E. G. Eberle, Journal (a)	6 40	
				" (b)	60 00	
				" (c)	20 11	
				Printing, postage and stationery	4 81	91 32
"	15.	"	2609	Louis C. Hesse, printing, postage and stationery		2 75
"	15.	"	2610	Stoneman Press Co., Journal (a)	421 82	
				Printing, postage and stationery	27 50	
				Scientific Section	2 50	451 82
"	15.	"	2611	E. G. Eberle, salaries		291 67
"	23.	"	2612	Wilbur L. Scoville, Conference of Committee on National Formulary (IV)		69 50
"	23.	"	2613	Otto Raubenheimer, Conference of Committee on National Formulary (IV)		6 00
"	23.	"	2614	M. I. Wilbert, Conference of Committee on National Formulary (IV)		6 12
"	23.	"	2615	S. L. Hilton, Conference of Committee on National Formulary (IV)		9 30
"	29.	"	2616	W. T. Robinson, membership		15 50
"	29.	"	2617	Chas. F. Mann, membership		7 00
"	29.	"	2618	W. B. Day, printing, postage and stationery	5 00	
				Clerical	32 00	
				National Formulary (III)	3 28	
				Miscellaneous	1 35	
				Freight, drayage and express	80	42 43

Dec.	6.	Check	2619	Louis C. Hesse, printing, postage and stationery		$14 50
"	10.	"	2620	Wickersham Printing Co., National Formulary (III)		17 19
"	10.	"	2621	J. W. England, printing, postage and stationery	$53 20	
				Miscellaneous	6 48	
				Freight, drayage and express	1 41	61 09
"	20.	"	2622	E. G. Eberle, Journal (b)	60 00	
				" (c)	20 05	80 05
"	20.	"	2623	E. G. Eberle, salaries		291 67
"	20.	"	2624	Stoneman Press Co., Journal (a)		430 73
"	20.	"	2625	Louis C. Hesse, printing, postage and stationery		3 75
"	20.	"	2626	W. T. Robinson, printing, postage and stationery		3 00
"	21.	"	2627	Stoneman Press Co., printing, postage and stationery		15 50
"	24.	"	2628	Louis C. Hesse, printing, postage and stationery		5 50
"	29.	"	2629	A. H. Fetting, badges and bars		2 80
"	29.	"	2630	Eschenbach Printing Co., Year-Book		490 20
"	31.	"	2631	J. W. England, salaries		150 00
"	31.	"	2632	Wm. B. Day, salaries (paid in 1916)		
"	31.	"	2633	Louis C. Hesse, printing, postage and stationery		3 50
"	31.	"	2634	Louis C. Hesse, printing, postage and stationery		1 50
"	31.	"	2635	E. F. Greathead, printing, postage and stationery		15 50
"	31.	"	2636	J. H. Beal, printing, postage and stationery	5 00	
				National Drug Trade Conference	78 28	83 28
		Total				$18,930 75

Cash Received and Disbursed for Ebert Legacy Fund by Check.

Jan.	5.	Check	2119	Theodore Flynn, village collector, opening of Woodland Avenue	$18 53	

Cash Received and Disbursed to Funds. (January 1, 1915, to January 1, 1916.)

Centennial Fund (interest on Massachusetts State Bonds)	$30 00		
Life Membership Fund (interest on Massachusetts State Bonds)	390 00		
Ebert Legacy Fund (interest on St. Louis Bonds)	80 00	500 00	

St. Louis International Bank Interest on Funds, January 1, 1915, to January 1, 1916.

Procter Monument Fund	$77 60		
Rice Memorial Fund	2 35		
Ebert Legacy Fund	40 35	120 30	

Check Received from T. N. Jamieson, November 3, 1915.

Ebert Legacy Fund (for sale of lot in Winnetka, Ill.)	$500 00		
Ebert Legacy Fund (reimbursed for expenses on lot after sold)	119 81	619 81	1258 64
Total amount of disbursements			$20,189 39

SUMMARY OF DISBURSEMENTS.

Salaries		$5245 86	
Printing, postage and stationery		1143 98	
Clerical expense, Secretary's office		476 00	
National Formulary III Edition	$244 13		
National Formulary IV Edition	640 86	884 99	
Miscellaneous expenses		135 33	
Drayage, freight and express		35 64	
Stenographers for Annual Meeting		395 15	
Travelling expenses		600 50	
Committee on Membership		277 41	
Committee on Unofficial Standards		61 14	
Year-Book No. 2		3000 95	
Membership gold badges and bars		36 40	
Certificates of Membership		26 25	
Premium on Treasurer's Bond		37 50	
National Drug Trade Conference		78 28	
Pharmaceutical Journals for Reporters on Progress of Pharmacy		21 89	
Section on Scientific Papers		21 32	
Section on Education and Legislation		17 25	
Section on Commercial Interests		17 50	
Women's Section		12 50	
National Syllabus Committee		25 00	
Membership buttons and pins		47 18	
Centennial Fund for Research Work on Cultivation of Medicinal Plants, etc.		100 00	
Journal (a) Publication	5214 64		
Journal (b) Clerical	665 83		
Journal (c) Printing, postage and stationery	276 74		
Journal (d) Freight, drayage and miscellaneous	35 52	6192 73	$18,890 75
To Life Membership Fund		390 00	
To Centennial Fund		30 00	
To Ebert Legacy Fund		80 00	500 00
To Ebert Legacy Fund (sale of lot in Winnetka, Ill.)		500 00	
To Ebert Legacy Fund (reimbursed for expense paid on lot after sold)		119 81	619 81
Payment out of Ebert Legacy Fund for Street Improvement			18 53
Ebert Prize Fund (prize to E. N. Gathercoal)			40 00

International Bank Interest from January 1, 1915, to January 1, 1916.

Ebert Legacy Fund	$40 35	
Procter Monument Fund	77 60	
Rice Memorial Fund	2 35	120 30
Total amount of disbursements		$20,189 39
Cash on hand, January 1, 1916		87 25
Total		$20,276 64

American Pharmaceutical Association Expenditures and Appropriations. January 1, 1915, to January 1, 1916.

		Expenditures	Appropriations
Salaries		$5245 86	$6625 00
Printing, postage and stationery		1143 98	1143 98
Clerical expense, Secretary's office		476 00	416 00
National Formulary III Edition	$244 13		
National Formulary IV Edition, Lewis C. Diehl Honorarium	500 00		
National Formulary IV Edition	140 86	884 99	1600 00

	Expenditures	Appropriations
Miscellaneous expenses	$135 33	$200 00
Drayage, freight and express	35 64	54 85
Stenographers for 1915 Annual Meeting	395 15	395 15
Travelling expenses	600 50	600 00
Committee on Membership	277 41	277 41
Committee on Unofficial Standards	61 14	100 00
Year-Book, 1913	3000 95	3000 95
Membership gold badges and bars	36 40	50 00
Certificates of Membership	26 25	50 00
Premium on Treasurer's Bond	37 50	50 00
National Drug Trade Conference	78 28	200 00
Pharmaceutical Journals for Reporter on Progress of Pharmacy	21 89	35 00
Section on Scientific Papers	21 32	25 00
Section on Education and Legislation	17 25	25 00
Section on Commercial Interests	17 50	25 00
Section on Practical Pharmacy	.....	25 00
Section on Historical Pharmacy	.....	22 59
Committee on Pharmacopœias and Formularies	.....	25 00
Women's Section	12 50	50 00
National Syllabus Committee	25 00	25 00
Membership buttons and pins	47 18	50 00
Centennial Fund for Research Work on Plants, etc.	100 00	100 00
Journal (a) Publication	5214 64	5214 64
Journal (b) Clerical	665 83	685 36
Journal (c) Printing, postage and stationery	276 74	450 00
Journal (d) Freight, drayage and miscellaneous	35 52	250 00
	$18,890 75	$21,770 93
Appropriations	21,770 93	
Expenditures	18,890 75	
Unexpended balance	$2880 18	

$60.00 of this expense was incurred in 1914 by the previous General Secretary and cannot be charged to the appropriations for 1915.

The A. Ph. A. Permanent Funds, January 1, 1916.

	1915	1916	Increase
Life Membership Fund	$20,363 05	$21,058 35	$695 30
Endowment Fund	6063 51	6308 45	244 94
Ebert Legacy Fund	3290 42	4012 05	721 63
Centennial Fund	2836 35	2941 13	104 78
Ebert Prize Fund	1081 38	1084 26	2 88
	$33,634 71	$35,404 24	$1769 53

The Association Assets, January 1, 1916.

St. Louis City Bonds	$10,000 00		
Cash in bank, January 1, 1916	87 25		
Available assets		$10,087 25	
Permanent funds		35,404 24	
Total A. Ph. A. assets			$45,491 49

Funds Held in Trust by A. Ph. A.

Procter Monument Fund	$7744 00	
Rice Memorial Fund	173 26	
College Prize Fund	36 96	$7954 22
Grand total of assets and trust funds, January 1, 1916 ...		$53,445 71

DETAILED STATEMENT OF THE SEVERAL AMERICAN PHARMACEUTICAL ASSOCIATION FUNDS.

Life Membership Fund. (Established in 1870.)

Massachusetts 3% Registered State Bonds			$13,000 00
On hand in Boston Penny Savings Bank, January 1, 1915 ...		$7363 05	
Interest on deposit in Boston Penny Savings Bank, January 1, 1915, to December 31, 1915	$305 30		
Interest on Massachusetts State Bonds, January 1, 1915, to December 31, 1915	390 00		
Deposited in Boston Penny Savings Bank, January 1, 1915, to December 31, 1915		695 30	
Balance on hand in Boston Penny Savings Bank, January 1, 1916			8058 35
Total on hand, January 1, 1915			$21,058 35

Ebert Prize Fund. (Established in 1873.)

On hand, Boston Penny Savings Bank, January 1, 1915 ...			$1081 38
Interest on deposit in Boston Penny Savings Bank		$42 88	
Cash prize to E. N. Gathercoal		40 00	2 88
Total on hand, January 1, 1916			$1084 26

Centennial Fund. (Established in 1877.)

Massachusetts 3% registered bonds			$1000 00
On hand in Boston Penny Savings Bank, January 1, 1915		$1836 35	
Interest on bonds, January 1, 1915, to December 31, 1915.....	$30 00		
Interest on deposit in Boston Penny Savings Bank, January 1, 1915, to December 31, 1915	74 78		
Deposited in Boston Penny Savings Bank, January 1, 1915, to December 31, 1915		104 78	
Balance on hand in Boston Penny Savings Bank, January 1, 1916			1941 13
Total on hand, January 1, 1916			$2941 13

Endowment Fund. (Established in 1906.)

On hand, January 1, 1915	$6063 51
Interest on deposit in Boston Penny Savings Bank, January 1, 1915, to December 31, 1915	244 94
Total on hand, January 1, 1916	$6308 45

Ebert Legacy Fund. (Established in 1909.)

St. Louis City registered 4% gold bonds				$2000 00
On hand, in International Bank, January 1, 1915			$1290 42	
Interest on St. Louis bonds	$80 00			
Interest on deposit in International Bank, January 1, 1915, to December 31, 1915	40 35			
Sale of Lot 14, Block 10, in Winnetka, Illinois	500 00			
Reimbursed for expenses paid on lot after sold	119 81	$740 16		
Disbursed for opening of Woodland Avenue		18 53		
Net income			721 63	
Balance on hand, in International Bank, January 1, 1916				2012 05
Total on hand, January 1, 1916				$4012 05

Procter Monument Fund. (Established in 1904.)
(Held in Trust.)

On time deposit in International Bank of St. Louis, January 1, 1915		$4812 46	
Interest on time deposit at 4%, January 1, 1915, to December 31, 1915		192 50	
Certificate of Deposit No. 63,008, International Bank of St. Louis			$5004 96
Deposit in International Bank of St. Louis, January 1, 1915		2661 44	
Interest on deposit in International Bank, January 1, 1915, to December 31, 1915		77 60	
Balance on hand in International Bank, January 1, 1916			2739 04
Total on hand, January 1, 1916			$7744 00

College Prize Fund. (Established in 1905.)
(Held in Trust.)

On hand, January 1, 1915	$35 54
Interest on deposit in Boston Penny Savings Bank, January 1, 1915, to December 31, 1915	1 42
Total on hand, January 1, 1916	$36 96

Rice Memorial Fund. (Transferred from U. S. P. C. in 1913.)
(Held in Trust.)

On hand, January 1, 1915	$170 91
Interest on deposit in International Bank of St. Louis, January 1, 1915, to December 31, 1915	2 35
Total on hand, January 1, 1916	$173 26

H. M. WHELPLEY, *Treasurer.*

PRESENTATION COPIES OF PHARMACOPŒIAS FOR LIBRARIES.

The Board of Trustees of the United States Pharmacopœial Convention places at the disposal of libraries the reserve copies of the United States Pharmacopœia, Seventh Revision (1890), and those copies of the United States Pharmacopœia, Ninth Revision (1900), having a four-page supplement which was incorporated in the text of later prints. Requests should be sent to the secretary of the Board, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo., and will be filled in the order of receipt. Fifty cents per copy should accompany the request, to cover expense of packing and transportation.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

CHICAGO.

The regular monthly meeting of the Chicago Branch of the American Pharmaceutical Association was held May 26.

James H. Wells of the Legislative Committee presented the following resolutions:

(1) Whereas, Graduation pre-requisite laws are now in successful operation in New York, Pennsylvania, Ohio, Rhode Island, and North Dakota; and

Whereas, in some fifteen other states, graduation pre-requisite laws are proposed and with excellent prospects of enactment at the coming sessions of the legislatures of these states:

Therefore be it resolved that the Chicago Branch of the American Pharmaceutical Association respectfully urges the Illinois Pharmaceutical Association to re-endorse the principle of graduation pre-requisite and to instruct its legislative committee to formulate a pre-requisite bill along the lines of the bill introduced by Senator Boehm (as Senate bill No. 83 in the last session of the legislature) and to introduce this bill and to earnestly work for its passage at the coming session of the Illinois Legislature: And that this pre-requisite bill be constituted a separate and distinct measure.

(2) Resolved, That the Chicago Branch favors a State tax on coupons and trading stamps and similar premium schemes.

Mr. Wm. Gray moved the adoption of these resolutions, which motion was duly seconded, discussed and carried.

Mr. A. H. Clark presented the following resolution and moved its adoption:

(3) Whereas, at the Annual Meeting of the American Pharmaceutical Association which will be held in Atlantic City in September, 1916, the Chicago Branch of the American Pharmaceutical Association will extend to the parent association through General Secretary Day an invitation to hold the *1918 Annual Meeting* in Chicago, and

Whereas, this will be the twenty-fifth anniversary of the last American Pharmaceutical Association meeting held in Chicago, namely, during the World's Columbian Exposition in 1893, and

Whereas, the advantages of such a meeting to pharmacy and pharmacists in Illinois is obvious;

Therefore be it resolved by the Chicago Branch, American Pharmaceutical Association, at its regular monthly meeting, that the Illinois Pharmaceutical Association be requested to join in this invitation to the American Pharmaceutical Association, and

Be it further resolved that the Chicago Retail Druggists' Association, the Chicago Veteran Druggists' Association and the Chicago Drug Club also be requested to join in this invitation.

The motion to adopt this resolution was seconded and carried by a unanimous vote.

E. N. GATHERCOAL, *Secretary.*

DENVER.

The May meeting of the Denver Branch of the American Pharmaceutical Association was held May 16 at the Adams Hotel and, as usual, a dinner preceded the meeting.

The following members and guests were present:

Messrs. C. H. Skinner, John A. Martin, S. T. Hensel, Lee Perkins, Chas. J. Clayton, C. Van Zandt, John Best, A. W. Clark, L. Wilson, L. L. Alkire, M. Becker, Geo. Gregory, A. D. Baker, M. P. Givens, David Brown, and F. J. Lord. Mr. Williamson, Federal Narcotic Inspector, Mr. Trimble, Credit Man of the Denver Dry Goods Company, Mr. Schilling, of the German Ameri-

can Trust Company, and Dr. Engle, Professor of Chemistry at the University of Colorado were guests of the Branch.

In the absence of President Hover, Vice-president Clark called the meeting to order and, after the reading and approval of the minutes of the previous meeting, called on the Secretary for a reading of communications. A letter from the American Fair Trade League was read. The Secretary also informed the Branch that he had received a long distance call from Prof. Washburn, expressing his regret in not being able to be present and asking him to convey to the Branch his personal sentiments in the matter of establishing a College of Pharmacy in the City of Denver by the University of Denver. Prof. Washburn felt that the Branch should act in reference to this proposed school with but one thought in mind and base their judgment on whatever they deemed best for the interest of pharmacy in Denver and Colorado. He hoped we would not allow the fact that the Branch was instrumental in starting the department of pharmacy in the University of Colorado, at Boulder, to influence our decision. Various members expressed their sincere appreciation of Dr. Washburn's position in this matter.

The President then called on Mr. Clayton to report for the Legislative Committee the action taken on the Steven's Bill and similar Legislation by the Denver Civic and Commercial Organizations. Mr. Clayton was not informed as to what report the Denver Civic Organization will send to the U. S. Chamber of Commerce; however, a vote of those in attendance was unfavorable, 76 for and 79 against.

Mr. Wilson, Chairman of the Membership Committee, reported four applications for associate membership: Arthur D. Baker, David Brown, J. Frederick McDonald, Lee Perkins; C. Van Zandt, who was present at this meeting, promised to become a member. On motion they were elected to Associate Membership by unanimous vote.

Mr. Clark then called for a report of the Committee on the third year course in Pharmacy and Mr. Nitardy, Secretary of this Committee, read the report recently made to the University on this course.

The report was discussed at some length by several members, after which Mr. Clark called on Mr. Williamson, who spoke of recent Harrison Law decisions and reported some experiences. He concluded by saying that he had been informed that the district consisting of Colorado and Wyoming, according to the Federal report, was one of the cleanest districts in the United States in so far as the narcotic situation was concerned.

Mr. Trimble spoke on a subject which, while not pharmaceutical, proved very interesting, namely, the "Biography of Pancho Villa." The point brought out in Mr. Trimble's address was that while Villa had been a bad man in the fullest sense of the word, there nevertheless was in him an element of greatness to be admired. Mr. Schilling also chose a biographical sketch for his subject but not a character of modern history, "The Life and Teachings of Socrates."

Mr. Clark then thanked Messrs. Trimble and Schilling in behalf of the Branch for their presence and spoke of the value of addresses of this nature, which proved entertaining and a diversion from routine business.

Dr. Engle, Professor of Chemistry, University of Denver, was then introduced by Vice-president Clark. Professor Engle stated that the suggestion of establishing a department of Pharmacy in the University of Denver had come to them from Mr. Van Zandt. On considering the matter the University was ready to organize such a department provided they would be in position to establish a school that would be a credit to them and the City of Denver, capable of giving a course that would admit its graduates to all states and that the drug trade of the city really desired such a school. They were not anxious to start a school unless an actual need existed and the support of the pharmaceutical profession of Denver could be obtained. They would not be justified in starting a school if the present demands were fully met by the department of pharmacy of the University of Colorado, in Boulder. Mr. Clark called on Messrs. Van Zandt, Clayton, Givens, Nitardy, Wilson and others for an expression of their opinion in this matter. They were strongly in favor of the establishment of such a department in Denver, because of the opportunity afforded Denver students in being able to live at home while attending school and work in a store. It would also afford the opportunity to out-of-town students to work their way through school by doing drug store work, thereby obtaining both technical training and practical experience.

A vote was taken on the matter which proved that the Branch was unanimously in favor of the establishment of such a department. Vice-president Clark suggested that it would be best to refer the action taken by this Branch to President Hover on his return to the city, with the suggestion that a committee from the Denver Branch be appointed to work with the Denver University in an effort to establish such a department, and asked that this be put in the form of a motion, in case the Branch thought such action advisable. Mr. Nitardy moved that this course be taken, which motion was carried.

F. W. NITARDY, *Secretary.*

DETROIT.

The April meeting of the Detroit Branch of the American Pharmaceutical Association was held in the Wayne County Medical Society Building, April 21st. President Scoville presiding.

The report of the committee having in charge the sending of flowers to Dr. A. B. Lyons on his 75th birthday was received.

A letter of acknowledgment from Doctor Lyons was read.

A communication was received from Prof. Otto Raubenheimer, requesting the adoption of a resolution protesting the interference with the importation of medicine into this country.

In accordance with the by-laws, the nominating committee, whose duty it is to present at the May meeting a list of names to be voted on for officers for the ensuing year, was appointed. Wm. A. Hall, Leonard A. Seltzer, and C. A. Weaver constitute the committee.

This completed the routine business of the Branch. The regular program was then taken up.

The speaker of the evening was Dr. P. M. Hickey, ex-president of the American Röntgen Ray Society, and at the present time editor of the American Journal of Röntgenology.

Doctor Hickey's paper considered at some length the history of the discovery of the X-ray and the development of the means of producing it and of taking röntgenographs.

The Doctor also discussed the use of the Röntgen Ray in the diagnosis of disease, and by means of numerous illustrations of actual cases thrown upon the screen he showed how the X-ray assisted surgeons in many ways, as in location of fractures, discovery of foreign particles in the body, etc. Dr. Hickey, who was one of the first in this country to take up the application of the X-ray to medicine, and who has contributed much to the advance of this branch of therapeutics, is a man of national reputation. He is a master of his subject and held the interest of the audience. At the close of his address the Branch, in token of its appreciation, tendered him a vote of thanks.

A. A. WHEELER, *Secretary.*

NASHVILLE.

The regular meeting of the Nashville Branch, American Pharmaceutical Association, was held in joint session with the Nashville Drug Club in the Music Room of the Nashville Y. M. C. A., Thursday afternoon, May 18th, with D. J. Kuhn presiding.

After the minutes of the previous meeting had been read and approved the discussion of the subject of Legislation, which was so ably presented by Mr. Barrett at the last meeting, was resumed. The necessity of pharmacists being represented in legislative bodies, by some member of their profession, was strongly emphasized and it was decided to select a suitable member as a candidate for the legislature from this county.

On motion of William R. White, the Legislative Committee of the two Associations was instructed to meet with the Legislative Committee of the Tennessee Pharmaceutical Association to discuss plans for thorough coöperation in their efforts to get proper representation in the next legislature, in order that the best interests of pharmacy may be safeguarded.

The attention of the Association was called to the approaching meeting of the American Pharmaceutical Association at Atlantic City by the Secretary and the members urged to prepare papers for the meeting.

WILLIAM R. WHITE, *Secretary.*

NEW YORK.

The May meeting of the New York Branch of the American Pharmaceutical Association was called to order by President Lascoff at 8:30 o'clock, on the evening of the 8th, in the Lecture Hall of the New York College of Pharmacy.

The minutes of the previous meeting were approved as read by the Secretary.

Treasurer Weinstein submitted his report and same was received with thanks.

The following report was received from the Committee on Membership:

"Your committee begs to report that since our last meeting it has received three applications for membership in the Branch from parties who are now members of the parent association and forty-four applications for full membership.

"Since your committee was elected and appointed four months ago, it has obtained seventy-nine members. At the present time there are nineteen members of the parent association residing in Brooklyn who are not members of the New York Branch, and in Manhattan and Bronx there are forty such members, and in commuting distance of New York, there are fifty-seven members of the parent association who are not members of the New York Branch.

"Your committee has written letters to all of these parties inviting them to join with us at our monthly meetings and become members of the Branch. Should these parties fail to respond, a list of their names will be read at some future meeting, and the cooperation of the entire membership will be requested.

"Your membership committee feels that all members of the parent association living in Greater New York, or in commuting distance thereof, should be members of the New York Branch.

"The Chairman wishes to thank the members of his committee for the very hearty support they are giving, and to solicit the continuance of their interest and efforts for the remainder of the year. He is particularly anxious to receive a considerable number of additional applications between now and the Atlantic City meeting, which will be held from September 5th to 9th."

(Signed) FRANK MCCARTNEY, *Chairman.*

The report was ordered spread in full upon the minutes, and a rising vote of thanks was tendered to Chairman McCartney.

The Secretary was ordered to forward to the General Secretary the names of the following applicants for membership in the parent body:

Henry Norwich Garfield, Brooklyn; Joseph John Dolan, Concord, S. I.; Gustav Alfred Sticht, Brooklyn; August A. Wasserscheid, New York; Charles V. Sparhawk, New York; Charles J. McCloskey, Jersey City, N. J.; Edward A Fox, New York; Theophile C. Kaminski, Brooklyn; Oscar Gudis, New York; Samuel S. Lippin, New York; Franklin B. Yates, New York; Max J. Breitenbach, New York; Reginald Edgar Dyer, New York; Nathan Glazer, New York; Abraham Blank, New York; Arthur Petretti, New York; Otto H. Kuhn, New York; Benjamin Bratter, Care of Jacobson, 1204 Evergreen Avenue, New York; Frank Barabini, New York; Philip G. Breivogel, New York; Henry S. Cohen, New York; Isidore Zeiger, Care of Tannenbaum, New York; Morris Cohen, New York; Frank S. Connelly, Goshen, New York; John B. Fiorillo, New York; Solomon Friedman, New York; Harold Friedman, Jersey City, N. J.; Isidor Ganbarg, New York; Maurice Klein, New York; Louis Krasnow, Brooklyn; Edward E. LoPorto, New York; William Morris, New York; Harry Neretin, New York; Charles P. Grimm, New York; Armando Paganelli, New York; Joseph Anthony Solano, Mt. Vernon, New York; Isaac Kasreal Sellman, New York; Samuel M. Schulsinger, New York; David Soskin, New York; David R. Uran, New York; William Weinar, Mt. Vernon, New York; Edward F. Chronik, New York; Ernest Stauffen, New York; Truman A. Linck, Kansas City, Mo.

Doctor W. C. Anderson, Chairman of the Committee on Legislation, and Dr. Jacob Diner, Chairman of the Committee on Fraternal Relations, reported progress.

Dr. Diekman as Reporter on Progress of Pharmacy asked to be excused from reading his report so as to give more time to the invited guests.

Messrs. L. F. Roediger, 46 Market Street, New York; Gabriel J. Fajardo, 128 Water Street, New York; and S. M. Jacobson, 171 Fourth Street, Elizabeth, N. J., were elected to membership in the Branch.

President Lascoff introduced Dr. H. P. Hynson and his associate, Dr. J. Carlton Wolf. Dr. Hynson explained to the members his plan for the merging of all state associations into one body, to be represented in the American Pharmaceutical Association by the House of Delegates, and after asking for their support in the above plan, called upon Dr. Wolf to open the "Prescription Clinic."

The latter read and discussed about twenty prescriptions he had brought with him, and

when he finished, a lively discussion ensued.

Twenty-five prescriptions were now thrown on the screen and discussed by many of the members as well as by our guests.

After extending a rising vote of thanks to Doctors Hynson and Wolf, an adjournment was taken.

JEANNOT HOSTMANN, *Secretary.*

PHILADELPHIA.

The regular monthly meeting of the Philadelphia Branch of the American Pharmaceutical Association was held Tuesday evening, May 9, 1916, at the Medico-Chirurgical College.

President Sturmer called the meeting to order at 8:30. The minutes of the previous meeting were read, corrected, and approved.

Mr. Cliffe, Chairman of the Committee on Entertainment, reported the progress his committee had made during the past two months.

Upon a suggestion contained in a communication from the Society of German Apothecaries of New York, the following resolution, proposed by Prof. Charles H. LaWall, was adopted:

WHEREAS the importation of medicines into the United States has been seriously interfered with by the belligerent nations, and in the majority of cases has been entirely stopped;

WHEREAS the suffering public in the United States is thereby deprived of much needed remedies for the cure and relief of disease;

WHEREAS the importation of medicinal substances to *neutral* countries should *not* be interfered with by the nations at war, provided that satisfactory guarantee be given that such supplies are not resold to belligerent countries;

Be it resolved, unanimously, at the regular meeting of the Philadelphia Branch of the American Pharmaceutical Association, May 9, 1916, that the Hon. Robert S. Lansing, Secretary of State, be earnestly requested to take immediate steps to remedy these deplorable conditions, so that the suffering humanity in our country can be supplied with much needed imported medicines, not manufactured in the United States.

In addition, it was resolved that the Secretary of State be requested to use his influence in favor of the proper amending of the Patent Laws, so as to compel foreign holders of United States patents to manufacture such products in the United States, when, for any reason, the supply is temporarily cut off, as it has been by the war which is now being waged in Europe.

The program of the evening was then taken up, and Mr. John K. Thum gave "A Review of Pharmaceutical Literature." Prof. Joseph McFarland delivered an address, illustrated by moving pictures, on "Protozoan Organisms Which Cause Certain Well-known Diseases."

A rising vote of thanks was given Mr. Thum and Prof. McFarland, after which the meeting adjourned.

J. ED. BREWER, *Secretary.*

SAN FRANCISCO.

The San Francisco Branch of the American Pharmaceutical Association met on the evening of May 5th, to listen to an address on "Pharmacy and National Preparedness," by Captain Wayne H. Crum, Medical Corps, U. S. Army. Dr. A. S. Musante presided and a large number of pharmacists and physicians attended the meeting. The routine duties of the Hospital Corps and the work of the National Red Cross were described. Mention was also made of the bill in Congress providing for two new grades in the Hospital Corps—Master Hospital Sergeants and Hospital Sergeants, these places being open to trained men. An interesting discussion followed the address. It was moved that the directors of the California College of Pharmacy be asked to add a course in "First Aid" to the curriculum of the school.

The Branch decided not to meet during the summer months. Adjournment was taken till Thursday evening, September 14, 1916.

CLARISSA M. ROEHR, *Secretary.*

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 21.

PHILADELPHIA, PA., April 4, 1916.

To the Members of the Council:

Motions No. 42 (*Petition to form the Montana Branch, A. Ph. A.*) and *No.* 43 (*Additional Appropriation of* $143.98 *for Printing, Postage and Stationery for* 1915) have each received a majority of affirmative votes.

In Council Letter No. 18 (February 25, 1916), a tentative program for the sixty-fourth annual meeting of the American Pharmaceutical Association, to be held at Atlantic City, N. J., during the week of September 4 to 9, 1916, was submitted by the Committee on Program and suggestions invited.

The program as finally revised is now submitted, as follows:

Monday, September 4 (Labor Day):

7.30 P.M. Meeting of the Council.

Tuesday, September 5:

11.00 A.M. First General Session.
Meeting of Committee on Nominations.
Meeting of Committee on Resolutions.

2.00 P.M. Section on Education and Legislation.
Commercial Section.
Women's Section.

4.00 P.M. House of Delegates.

7.30 P.M. Meeting of the Council.

9.30 P.M. President's Reception.

Wednesday, September 6:

9.30 A.M. Second General Session.

12.30 P.M. Luncheon of College Alumni.

2.00 P.M. Section on Education and Legislation.
Section on Practical Pharmacy and Dispensing (Pharmacopœias, Formularies and Standards).
Commercial Section.

4.00 P.M. House of Delegates.

7.30 P.M. Meeting of the Council.
Joint Session of Section on Education and Legislation, A. C.-P. F. and N. A. B. P.

Thursday, September 7:

9.30 A.M. Scientific Section.
Section on Practical Pharmacy and Dispensing (Pharmacopœias, Formularies and Standards).

11.00 A.M. House of Delegates.

2.00 P.M. Scientific Section.
Section on Practical Pharmacy and Dispensing (Pharmacopœias, Formularies and Standards).
Women's Section.

7.30 P.M. Meeting of the Council (Reorganization).

Friday, September 8:

9.30 A.M. Meeting of the Council.
Historical Section.
Scientific Section.

2.00 P.M. Final General Session.

Saturday, September 9:

Sightseeing.

Do you approve the above program? This will be regarded as *Motion No.* 44 (*Approval of Program for* 1916 *Annual Meeting*).

The Headquarters of the Association will be at the Hotel Chalfonte.

In this connection, the following information will be of interest:

The American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy have decided to meet in Philadelphia on Thursday, August 31st, Friday, September 1st, and Saturday, September 2nd.

The meetings of the Boards will be held on Thursday and Friday, and those of the Faculties on Friday, while on Saturday there will be a joint session of the Boards and Faculties. Additional sessions may be held

during the evenings or on Monday, if necessary. The A. C. P. F. will meet in the rooms of the Philadelphia Drug Exchange, and the N. A. B. P. in the rooms of the Philadelphia Board of Trade or other rooms of the Philadelphia Bourse Building. After adjournment, the members of these bodies will go to Atlantic City to attend the sessions of the American Pharmaceutical Association the following week.

Motion No. 45 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 123. William E. Davis, Freedmen's Hospital, Washington, D. C., rec. by Wm. B. Day and J. W. England.

No. 124. Henry George G. Lescher, 2037 North Keeler Ave., Chicago, Ill., rec. by G. L. Secord and Wm. B. Day.

No. 125. Wilber Alexander Mahoney, Cocoa, Fla., rec. by E. A. Ruddiman and J. T. McGill.

No. 126. Fay Harold Elliott, 21 Medford St., Medford, Mass., rec. by Theodore J. Bradley and Elie H. LaPierre.

No. 127. Jacob Edison Good, Fourth and Bridge St., New Cumberland, Pa., rec. by Charles H. LaWall and E. Fullerton Cook.

No. 128. Niels P. Hansen, 1617 S. 17th St., Lincoln, Neb., rec. by Edith Hindman and C. W. Johnson.

No. 129. George Harvey Gift, 741 Grand Ave., cor. 8th St., Milwaukee, Wis., rec. by Adolph Spiegel and Henry A. Peters, M.D.

No. 130. Joseph Jerry Pelc, 1517 S. 57th Ave., Cicero, Ill., rec. by E. N. Gathercoal and W. B. Day.

No. 131. John Roy Keeny, Care of La. State Board of Health, New Orleans, La., rec. by Philip Asher and E. G. Eberle.

No. 132. Ira Lee Goheen, 1014 Mississippi St., Lawrence, Kansas, rec. by L. D. Havenhill and G. N. Watson.

No. 133. Herbert O. Baer, 12th and Chapline Sts., Wheeling, W. Va., rec. by Charles H. LaWall and M. R. LaWall.

No. 134. Joseph M. Feder, U. S. S. New Orleans, Bremerton, Wash., rec. by Wm. B. Day and J. F. Rupert.

No. 135. Charles Percival Datz, 474 E. 41st St., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 136. Alan W. Jacks, 4800 Washington Blvd., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 137. Anthony Kartanas, 3343 Lowe Ave., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 138. Israel Mawrence, 4914 Forestville Ave., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 139. Maurice William Sheehy, Ph. G., National Military Hospital, Dayton, Ohio, rec. by J. H. Beal and J. W. England.

No. 140. James Francis Bradley, 1443 Ogden Ave., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 141. Miss Piedad Nogueira y Ortiz, 38 Merced St., Havana, Cuba, rec. by Jose Guillermo Diaz and Jose P. Alacan.

No. 142. Miss Elisa M. Fortim, 11 Obrapia St. (altos) Havana, Cuba, rec. by Jose Guillermo Diaz and Jose P. Alacan.

No. 143. Miss Luisa Calonge y Falcon, 282 moderno Neptimo St., Havana, Cuba, rec. by Jose Guillermo Diaz and Jose P. Alacan.

No. 144. Joseph Poczos, 301 Hancock Ave., Bridgeport, Conn., rec. by Wm. B. Day and J. W. England.

No. 145. Harry Gasen, 74 E. 12th St., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 146. Harry Benjamin Sanders, 2357 Kenilworth Ave., Norwood, Ohio, rec. by Louis Heister and Theo. D. Wetterstroem.

No. 147. Benjamin Hoyer, 1122 Central Ave., Newport, Ky., rec. by Louis Heister and Theo. D. Wetterstroem.

No. 148. John Edward Mace, 168 Duane St., New York, N. Y., rec. by Frank L. McCartney and Caswell A. Mayo.

No. 149. William Peter McNulty, 21 Gold St., Norwich, N. Y., rec. by Turner F. Currents and Frank L. McCartney.

No. 150. Florentino F. Garcia, 100 William St., New York, N. Y., rec. by Frank L. McCartney and Jeannot Hostmann.

No. 151. H. Rolff Planten, 93 Henry St., Brooklyn, N. Y., rec. by Turner F. Currens and Frank L. McCartney.

No. 152. George R. Tompkins, Hudson and Vestry Sts., New York, N. Y., rec. by Frank L. McCartney and Jeannot Hostmann.

No. 153. Burton T. Bush, 18–20 Platt St., New York, N. Y., rec. by Frank L. McCartney and W. B. Day.

No. 154. David John McMullin, Hospital Steward, U. S. Navy, Pago Pago, Tutuila, American Samoa, rec. by Wm. B. Day and J. F. Rupert.

No. 155. Lester Earl Auger, Hospital Steward, U. S. Navy, U. S. S. Hannibal, Care of Postmaster, New York, N. Y., rec. by Wm. B. Day and J. F. Rupert.

J. W. ENGLAND,
Secretary of the Council.

415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 22.

PHILADELPHIA, PA., April 25, 1916.

To the Members of the Council:

Motions No. 44 (*Approval of Program for* 1916 *Annual Meeting*) and *No.* 45 (*Election of Members; Applications Nos.* 123 *to* 155 *inclusive*) have each received a majority of affirmative votes.

The following communication has been received (April 22) from Francis E. Bibbins, of Indianapolis:

COUNCIL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION:

We, the undersigned members of the American Pharmaceutical Association, hereby petition the Council to authorize the formation of a local branch consisting of the members of the American Pharmaceutical Association residing in Indiana within a radius of eighty-five miles of Indianapolis, to be known as the Indianapolis Branch of the American Pharmaceutical Association.

J. G. Mueller, Indianapolis.
Frank H. Carter, Indianapolis.
H. L. Parmelee, Indianapolis.
Chas. W. Watkins, Indianapolis.
John S. Wright, Indianapolis.
Woods A. Caperton, Indianapolis.
E. G. Eberhardt, Indianapolis.
Theo. Zimmerman, Terre Haute.
H. W. S. Carter, Indianapolis.
Maurice P. Schwartz, Indianapolis.
Frank R. Eldred, Indianapolis.
Eric Leth, Indianapolis.
Francis A. Federer, Indianapolis.
William C. Bartholomew, Indianapolis.
Josiah Kirby Lilly, Jr., Indianapolis.
Ralph M. Reahard, Indianapolis.
Murry K. Pruyn, Indianapolis.
H. W. Rhodehamel, Indianapolis.
C. M. Warner, Indianapolis.
August Kassulke, Indianapolis.
Chas. R. Eckler, Indianapolis.
Edwin W. May, Martinsville.
Ralph W. Showalter, Indianapolis.
Fred A. Miller, Indianapolis.
Robert P. B. Lodall, Indianapolis.
Chas. J. Lynn, Indianapolis.
Francis E. Bibbins, Indianapolis.
Albert D. Thorburn, Indianapolis.
W. F. Gidley, Lafayette.
M. E. Parker, Indianapolis.
Eli Lilly, Indianapolis.
Josiah K. Lilly, Indianapolis.
Henry J. Huder, Indianapolis.
Howard R. Davis, Indianapolis.
Arthur E. Denison, Terre Haute.

Indianapolis, April 19, 1916.

Do you favor granting the above petition? It will be known as *Motion No.* 46 (*Petition to Form Indianapolis Branch, A. Ph. A.*).

Motion No. 47 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 156. Paula Coll, Compostela No. 170, Havana, Cuba, rec. by Jose Guillermo Diaz and Jose P. Alacan.

No. 157. Nathan Zonies, 29th and Diamond Sts., Philadelphia, Pa., rec. by Charles H. LaWall and E. Fullerton Cook.

No. 158. Miss Antonia M. Garrigo, 1 Altarriba St., Havana, Cuba, rec. by Jose Guillermo Diaz and Jose P. Alacan.

No. 159. Otto E. Betz, S. E. Cor. Erie Ave. and Edwards Road, Cincinnati, Ohio, rec. by Clyde M. Snow and Wm. B. Day.

No. 160. Amos Bissell, Care of Essex Varnish Co., Newark, N. J., rec. by Charles Holzhauer and J. W. England.

No. 161. Ralph McDonnell Reahard, 3339 Ruckle St., Indianapolis, Ind., rec. by Frank R. Eldred and Francis E. Bibbins.

No. 162. Josiah Kirby Lilly, Jr., 1704 N. Pennsylvania St., Indianapolis, Ind., rec. by Francis E. Bibbins and Frank R. Eldred.

No. 163. Harold L. Parmelee, Y. M. C. A., Room No. 74, Indianapolis, Ind., rec. by Francis E. Bibbins and Frank R. Eldred.

No. 164. Howard R. Davis, 3812 Graceland Ave., Indianapolis, Ind., rec. by Frank R. Eldred and Francis E. Bibbins.

No. 165. Cortice M. Warner, 4357 N. Penn. St., Indianapolis, Ind., rec. by F. R. Eldred and Wm. B. Day.

No. 166. Eric Gunnar Leth, 820 N. East St., Indianapolis, Ind., rec. by Francis E. Bibbins and Frank R. Eldred.

No. 167. Woods A. Caperton, Care of Eli Lilly and Co., Indianapolis, Ind., rec. by Frank R. Eldred and Francis E. Bibbins.

No. 168. Ralph R. Thoroman, Mt. Sterling, Ill., rec. by W. B. Day and E. N. Gathercoal.

No. 169. Robert A. Schulz, 1774 Baltimore Ave., Cincinnati, Ohio, rec. by William C. Alpers and Eugene R. Selzer.

No. 170. John Shepard Wright, 3718 North Pennsylvania St., Indianapolis, Ind., rec. by Wm. C. Bartholomew and Frank R. Eldred.

No. 171. Frank Bolte, 1539 Baymiller St., Cincinnati, Ohio, rec. by Frank H. Freericks and Theo. D. Wetterstroem.

No. 172. Robert C. Pursell, 280 Pearl St., New York, N. Y., rec. by Frank L. McCartney and Geo. T. Riefflin.

No. 173. Zachary Joshua Loussac, 107 Front St., Juneau, Alaska, rec. by Geo. C. Diekman and Curt P. Wimmer.

No. 174. Charles Thomas Larkins, 105 East Sixth St., East Liverpool, Ohio, rec. by William C. Alpers and Eugene R. Selzer.

No. 175. Julius Kramer, 723 Ninth Ave., New York, N. Y., rec. by Leo H. Fried and Jeannot Hostmann.

No. 176. Joseph Albert Wolfe, 410 Chestnut St., Philadelphia, Pa., rec. by Charles H. LaWall and M. R. LaWall.

No. 177. Eugene James Cardarelli, 99 Wilson St., Brooklyn, N. Y., rec. by Frank L. McCartney and Jeannot Hostmann.

No. 178. Irwin Leonard Betzel, Corvallis, Oregon, rec. by Adolph Ziefle and M. J. Seeley.

No. 179. Lewis Nathan Brown, 115 W. 68th St., New York, N. Y., rec. by Geo. C. Diekman and Curt P. Wimmer.

No. 180. Harley Wesley Rhodehamel, 643 E. 32nd St., Indianapolis, Ind., rec. by M. K. Pruyn and Frank R. Eldred.

No. 181. Wm. J. Mooney, 101 S. Meridian St., Indianapolis, Ind., rec. by Francis E. Bibbins and Wm. C. Bartholomew.

No. 182. Lucius P. Brown, 137 Davis Ave., West New Brighton, Staten Island, N. Y., rec. by Otto Raubenheimer and Jeannot Hostmann.

No. 183. Ferdinand A. Mueller, S. W. Cor. Washington and East Sts., Indianapolis, Ind., rec. by Clyde M. Snow and August Kassulke.

No. 184. Brandegee Douglas, Hospital Steward, U. S. N., U. S. S. Scorpion, Care of Postmaster, New York, N. Y., rec. by Wm. B. Day and J. F. Rupert.

No. 185. Mortimer Bye, 2621 Sutherland Ave., Indianapolis, Ind., rec. by Francis E. Bibbins and Chas. R. Eckler.

J. W. ENGLAND,
Secretary of the Council.

415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 23.

PHILADELPHIA, Pa., May 12, 1916.

To the Members of the Council:

Motions No. 46 (*Petition to Form Indianapolis Branch, A. Ph. A.*) and *No.* 47 (*Election of Members; Applications Nos.* 156 *to* 185 *inclusive*) have each received a majority of affirmative votes.

On December 16, 1915, the Council adopted the following motion (C. L. No. 13, 47, motion No. 20): "We request our Finance Committee, with a special committee of five members to be appointed by the Chairman of the Council, to make a special study of the available assets and current expenses of the Association and see what suggestions they can make regarding the improving of the financial status of the Association."

Chairman E. G. Eberle wishes to state that: "In compliance with the vote of the Council, I have named the following on the Special Finance Committee: H. B. Mason, Detroit; F. W. Sultan, St. Louis; H. C. Christensen, Chicago; George M. Beringer, Camden, N. J.; S. L. Hilton, Washington, D. C."

Motion No. 48 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 186. E. Grace Hoffman, 13th and Linden Sts., Allentown, Pa., rec. by Charles H. LaWall and J. W. England.

No. 187. Alberto Roldan Ramirez, Farmacia El Globo, David, Chg. Rep. of Panama, rec. by Bolivar Jurado and J. V. Delgado.

No. 188. John Edward Seybert, Care of Eli Lilly and Co., Indianapolis, Ind., rec. by Wm. C. Bartholomew and Francis E. Bibbins.

No. 189. F. William Stockhaus, 2082 Fulton Road, Cleveland, Ohio, rec. by William C. Alpers and Eugene R. Selzer.

No. 190. Robert Lee Greenwood, 309 S. Hamilton St., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 191. William Beckman, Ph.G., Chatsworth, Ill., rec. by William Gray and William B. Day.

No. 192. Robie Rolland Weaver, Ph.G., 1615 S. Penn. St., Muncie, Ind., rec. by Clyde M. Snow and Wm. B. Day.

No. 193. Chas. W. Westenfelter, 37 E. Main St., Springfield, Ohio, rec. by William C. Alpers and Eugene R. Selzer.

No. 194. Chas. E. Lawson, 1117 Ewing St., Indianapolis, Ind., rec. by Francis E. Bibbins and W. C. Bartholomew.

No. 195. Frank William Graham, Ph.G., 518 N. Side Square, Carlinville, Ill., rec. by A. H. Clark and Wm. B. Day.

No. 196. Miss Agnes Duvoisin, Baltimore Ave. and Maple Terrace, Clifton Heights, Pa., rec. by Charles H. LaWall and M. R. LaWall.

No. 197. Hugh C. Russell, 3428 Clybourn St., Milwaukee, Wis., rec. by C. W. Johnson and A. W. Linton.

No. 198. Edward Sehl, 117 W. High St., New Philadelphia, Ohio, rec. by William C. Alpers and Eugene R. Selzer.

No. 199. William P. Jenkins, 5th and Ludlow Sts., Dayton, Ohio, rec. by William C. Alpers and Eugene R. Selzer.

No. 200. Horace John Megin, U. S. Naval Magazine, Portsmouth, Va., rec. by Wm. B. Day and J. F. Rupert.

No. 201. William Everett Smith, 307 Main St., Moscow, Idaho, rec. by Wm. B. Day and J. W. England.

J. W. ENGLAND,
Secretary of the Council.

415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 24.

PHILADELPHIA, Pa., May 22, 1916.

To the Members of the Council:

Motion No. 48 (*Election of Members; Applications Nos.* 186 *to* 201 *inclusive*) has received a majority of affirmative votes.

Motion No. 49 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 202. Emil Starz, 21 W. 6th Ave., Helena, Mont., rec. by Chas. E. Mollet and Alex. F. Peterson.

No. 203. Frank Barabini, 97 Lexington Ave., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 204. Abraham Blank, 432 E. 79th St., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 205. Benjamin Bratter, 1204 Evergreen Ave., Bronx, New York, N. Y., rec. by Gustave Horstmann and Jacob Diner.

No. 206. Max J. Breitenbach, 53 Warren St., New York, N. Y., rec. by Frank L. McCartney and Geo. Rieffein.

No. 207. Philip J. Breivogel, 2134 LaFontaine Ave., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 208. Henry S. Cohen, 2142 Hughes Ave., New York, N. Y., rec. by G. Horstman and Jacob Diner.

No. 209. Morris Cohen, 2400 Seventh Ave., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 210. Frank S. Connelly, 7 Delta Place, Goshen, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 211. Reginald Edgar Dyer, 81 Fulton St., New York, N. Y., rec. by Romain Pierson and Frank L. McCartney.

No. 212. John B. Fiorillo, 304 W. 149th St., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 213. Edward Fox, 329 E. 152nd St., New York, N. Y., rec. by Gustave Horstmann and Jacob Diner.

No. 214. Harold Friedman, 435 Palisade Ave., Jersey City, N. J., rec. by G. Horstmann and Jacob Diner.

No. 215. Solomon Friedman, 62 Rivington St., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 216. George Peter Gakidis, Ph.G., 779 Tremont St., Boston, Mass., rec. by Theodore J. Bradley and John G. Godding.

No. 217. Henry N. Garfield, 1055 Bergen St., Brooklyn, N. Y., rec. by Turner Fee Currens and Frank L. McCartney.

No. 218. Isidor Ganbarg, 21 E. 105th St., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 219. Nathan Glazer, 1246 Second Ave., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 220. Charles P. Grimm, 671 Courtland Ave., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 221. Oscar Gudis, 94 Rivington St., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 222. Theophile C. Kaminski, 214 33rd St., Brooklyn, N. Y., rec. by Gustave Horstmann and Jacob Diner.

No. 223. Maurice Klein, 1310 Brook Ave., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 224. Louis Krasnow, 167 Havemeyer St., Brooklyn, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 225. Otto H. Kuhn, 1071 Franklin Ave., New York, N. Y., rec. by Gustave Horstmann and Jacob Diner.

No. 226. Edward E. LoPorto, 503 W. 52nd St., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 227. Truman A. Linck, 904 Grand Ave., Kansas City, Mo., rec. by H. V. Arny and Jeannot Hostmann.

No. 228. Samuel D. Lippin, 30 West 116th St., New York, N. Y., rec. by G. Horstmann and J. Diner.

No. 229. Charles J. McCloskey, 351 Montgomery St., Jersey City, N. J., rec. by Luke C. Hines and John C. Gallagher.

No. 230. William Morris, 319 E. 9th St., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 231. Harry Neretin, 1381 Franklin Ave., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

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No. 241. Gustave Alfred Sticht, 752 Flushing Ave., Brooklyn, N. Y., rec. by Frank L. McCartney and C. A. Mayo.

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No. 243. August A. Wasserscheid, 30 and 32 Platt St., New York, N. Y., rec. by Frank L. McCartney and Caswell A. Mayo.

No. 244. William Weinar, 122 S. First St., Mt. Vernon, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 245. Franklin B. Yates, 159 Leonard St., New York, N. Y., rec. by Frank L. McCartney and Geo. T. Reiffein.

No. 246. Isidore Zeiger, 22 E. 112th St., Care of Tannenbaum, New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 247. Edward F. Chronik, 819 E. 163rd St., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 248. Norma C. Hawley, Butterworth Hospital, Grand Rapids, Mich., rec. by Anna G. Bagley and Bertha Ott.

No. 249. Howard Jonathan Koch, 1020 Turner St., Allentown, Pa., rec. by Charles H. LaWall and M. R. LaWall.

J. W. ENGLAND,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

CONSERVATION OF WASTE PAPER.

Everyone will have discovered that paper is advancing in price day by day. Dean Albert W. Smith, Sibley College, Cornell University, says that when paper scarcity is threatened the following facts should be considered:

Waste paper may be burned or turned over to the ragman; but there is a very important economic difference between these two methods of disposal.

The paper that the ragman receives eventually reaches the paper mills and is worked over; thus waste may become available again as new stock in a very short time—a few weeks or even less. It is true that paper with printer's ink on it cannot be worked over into new white stock; but it can be used to produce wrapping paper, and this releases an equivalent amount of pulp for production of white stock.

If the paper is burned the carbon that it contains combines with atmospheric oxygen to form gaseous carbon dioxide which is diffused through the atmosphere. This carbon, or its equivalent, can only become available again for paper through the slow process of plant growth, requiring many months or perhaps years.

Briefly, the process is as follows: Energy in the form of light and heat from the sun comes to the growing parts of plants, which are thereby enabled to separate the carbon and oxygen of carbon dioxide of the atmosphere; the oxygen is turned back into the air, and the carbon is stored in the plant fibre together with oxygen and hydrogen from the water supplied for irrigation. The plant fibre is cellulose ($C_6H_{10}O_5$), and paper consists of very fine fibres of cellulose interwoven and formed into a thin web. The whole object of the pulp and paper making process is to change raw plant fibre into paper.

In the case of linen paper the source is the fibre of flax, which is first made into linen cloth; when this through use becomes rags it is made into paper. Flax matures in one season, but the interval between the maturing of flax and the production of linen paper may be several years. Hence all linen paper should be saved and started toward the paper mill.

The same reasoning applies to paper made from cotton fibre.

The paper made from wood-pulp has its source usually in the trunks and branches of spruce trees, and several years of growth are required to prepare a tree for the pulp mill; hence no wood-pulp paper should be burned.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman;* G. M. BERINGER, E. FULLERTON COOK, H. B. MASON, F. J. WULLING, and the Editor-in-Chief of the Journal, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio.*

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THE PHARMACIST IN GOVERNMENT SERVICE.

Germany places its medical supply department in the hands of trained pharmacists; Japan followed this example and it is said that the pharmacy department is one of the most efficient of its military organization.

Pharmacists who have been in position to know something of the supply department for the army in this country are aware that there is often an evidence of either indifference or ignorance in purchasing drugs and related supplies. The same occasionally obtains in the purchase of supplies for state institutions.

The point is presented to direct attention and offer argument for placing this duty in the hands of qualified pharmacists. The uninformed officials or army medical men are perhaps not intentionally indifferent, but their knowledge of drug prices is meagre and therefore they cannot be observant. This leads to graft which could be prevented by the suggested method. Pharmacists should have supervision over sanitary regulations and operations and be entrusted with the handling of medical supplies.

It may not be generally known that the pharmacists of the Public Health Service have had *no* increase in pay for about fourteen years. March 4, 1913, the President approved the revised regulations of the Public Health Service, which provided a new scale of pay for the pharmacists with increased compensation. Congress, however, in the same year, in an Act for appropriations, provided that no part of any money appropriated shall be available for the payment of personal services at a rate of compensation in excess of that paid for the same or similar services during the preceding fiscal year. Hence the action of Congress prevented the paying of the increased compensation.

An Act of August 14, 1912 increased the duties of various officials, etc., and this made it possible to pay advanced salaries under the interpretation that increased pay followed the added duties. The pharmacists in the Public Health Service also were given more and additional work and under similar interpretation should be entitled to increased pay. At this time, when there is to be reorganization, these matters should be brought forward so that these pharmacists may receive rightful consideration.

DERELICTS IN THE DRUG BUSINESS.

One of the most serious problems that confronts associations and individual druggists is, what to do with those who pursue methods that discredit the craft. To be more specific, there are men in the drug business who substitute and adulterate, conduct saloons instead of drug stores, sell articles and drugs that are prohibited by law. They take the chances, but often continue their nefarious business for years without being caught. It cannot be denied that such conditions are hurtful, but how can they be corrected?

In every large city, and even in other localities, there are dealers in prohibited drugs and articles. Personally, some of them are "fine fellows," their competitors dislike to report them, but is this right? They are oblivious to moral or professional claims that others, who detest such practices, have on them. In the current issue of one of the drug journals there are a number of views showing the destruction of saloons, in fact, drug stores, in name. In the daily papers may be seen, from time to time, pictures of druggists apprehended for selling narcotics. The medical profession is not free from such undesirables, but that is poor consolation.

The United States Supreme Court has held

Section 8 of the Harrison Law unconstitutional, which means that many cases now in court will be *nolle prossed* and, until new prosecutions can be perfected, will increase the illegitimate sales of narcotics.

States should see the necessity for effective pharmacy laws to exclude the unfit and eliminate the unworthy. The revoking of license should not only be a penalty of the law, but the one of invariable application, when intentional violations of laws are proven.

THE UNITED STATES SUPREME COURT RULING ON SECTION EIGHT OF HARRISON LAW.

It has been pointed out before that, in constructing the Harrison Law, the tax power of the federal government was distorted to create an extraordinary police function for which there is no direct authority in the constitution, and this created police power includes personal and individual regulation which is beyond scope of law. According to the Supreme Court's interpretation of the Harrison Law, possession of the proscribed drugs is not a crime nor *prima facie* evidence of a crime, except such possession be shown to be for the purpose of sale.

All reforms cannot be accomplished by law, and while the decision is disappointing because thereby the Harrison Law is for the time seriously crippled, means will be devised whereby the same end will be reached legally. Though the full text of the majority opinion by Justice Holmes is not to hand at this writing, the published synopsis indicates clearly that Congress has power to remedy the defect which the Supreme Court has discovered in the Harrison Act.

Justices Hughes and Pitney dissented from the majority decision.

A NEW CHEMICAL ANTIDOTE FOR MERCURIC CHLORIDE POISONING.

E. M. Harvey, druggist of Eugene, Ore., in coöperation with Dr. J. G. Hurst of the same city, has worked out a new chemical antidote for "bichloride" poisoning, which they contend is also physiologically active. Successful tests have been made in the laboratory and also in actual cases of poisoning.

The report is made in the Pacific Drug Review; the constituents and proportions of the antidote are, calcium oxide, 90; sublimed sulphur, 250, and water to make 4000. The lime is slaked and the sulphur is mixed with the magma; 4000 Cc. of hot water are added, and the mixture boiled, under constant stirring, for half an hour. When cold, the mixture is filtered through absorbent cotton, bottled and tightly corked.

In the chemical reaction calcium bisulphide and calcium thiosulphate are formed and these, reacting with mercuric chloride, liberate mercuric sulphide, and the other products of the reaction finally are calcium thiosulphate and hydrochloric acid; these in the quantities employed are harmless.

The directions for administration are stated as follows: two fluidrachms of the antidote are given, diluted in a glass of water, followed by an enema containing 30 minims of the antidote, and this is to be retained as long as possible. After this, during twelve hours following, 4 drops are diluted with a glass of water and such dose repeated every hour.

Theoretically the proposition looks all right and, having been successfully employed in actual poisoning cases, evidently proves the practical value.

CORNELIUS HANBURY.

Notice was not made in last month's issue of the death of Cornelius Hanbury, and, although rather late, a record should appear in this publication.

Mr. Hanbury was born November 29, 1827, and passed away April 11, aged eighty-nine years. The firm of which he was a member celebrated its bicentenary last December. Mr. Hanbury served a five-year apprenticeship, passing the examination of the College of Surgeons in 1849 and the next year that of the Apothecaries' Company. In 1849, he began work at the pharmacy of his uncle and father at Plough Court. Here he became closely associated with his cousin, Daniel Hanbury, and with him, in due course of time, succeeded to the business of Allen and Hanburys. Mr. Hanbury was for a time treasurer and also member of the Council of the British Pharmaceutical Society. A sketch of the life of this distinguished pharmacist cannot be attempted. Suffice it to say, the company of which he was at one time sole owner has large branches in practically every country.

PROFESSOR EMILE CLEMENT JUNGFLEISCH.

Professor Emile Clement Jungfleisch, of the Paris School of Pharmacy, died April 24, aged seventy-seven years, at his residence in Paris, France. At the age of twenty he became a member of the Paris Society of Chemistry; in 1863 house-pharmacist at La Pitié; in 1865, he rendered valuable service during the cholera epidemic; in 1869 he became preparator to Berthelot and from thence on succeeded to positions made vacant by the latter. In 1872 Professor Jungfleisch was awarded the Jecker prize of the Academy of Sciences for his work on benzene chloride and the transformation of varieties of tartaric acid. Many honors came to him during his active life, which brought forth numerous contributions to pharmacy and chemistry. While distinguished as a chemist and member of the Academy of Medicine, he was at one time president of the Paris Society of Pharmacy and an honored member thereof, also member of the Revision Committee of the Codex since 1884.

BARTRAM'S DESCENDANTS TO RESTORE FAMOUS PHILADELPHIA GARDEN.

Lineal descendants of John Bartram and members of the association named for the founder of the first botanical garden in America gathered, June 3, on these grounds and voiced their determination to restore the garden to its original state of one hundred and eighty-six years ago.

Tentative plans for the restoration have been considered, and in the near future more active steps will be taken. Several distinguished speakers participated in this, the twenty-second annual meeting, among them our fellow member, Dr. Adolph W. Miller.

There is much remaining in the garden and the house that links the past with the present, and with sufficient means it will be possible to restore original conditions, as far as these are desirable.

NEW YORK TRADE PRESS TAKES ACTION AGAINST ALLEGED PRICE COMBINATION OF PHOTO-ENGRAVERS.

The New York Trade Press Association is leading a fight against arbitrary and what is believed to be illegal action on the part of the engraving concerns of the city. These concerns have banded themselves together, under the name of the Photo-Engravers' Board of Trade, and recently notified all the publishers in New York City of an advance in the prices for photo-engraving which runs all the way from 20 to 200 percent.

It is noteworthy that the photo-engravers succeeded in putting into effect a similar scale in Chicago *and are planning to do likewise in* 34 *other cities*, without opposition from the publishers. In New York, too, it was assumed, at first, that this high-handed action could get through unchallenged. The trade publishers, however, looked into the matter and reached the conclusion that the action of the photo-engravers was contrary to law; that not only does it violate the Federal statute against combinations to fix prices, but that it directly contravenes a New York state law, known as the Donnelly Act, which is really more stringent than the Federal statute. The New York Trade Press Association has brought the matter to the attention of the District Attorney in New York County.

OBITUARY.

CHARLES L. HAY.

Charles LaMar Hay, of Du Bois, Pa., a prominent pharmacist of Pennsylvania, died of apoplexy in St. Mary's Church, St. Mary's, on April 23, 1916.

Mr. Hay was born at Lost Creek, Schuylkill County, Pennsylvania, August 15, 1866. He went to Du Bois in 1881, and later entered the employ of the late E. Fred Vosburg, being taken into partnership in 1888. Two years later he purchased Mr. Vosburg's interest, Mr. Vosburg having started the Corner Drug Store. In 1900 Mr. Hay purchased this store from Mr. Vosburg and in 1914 he formed the Hay Drug Company. Last June, Mr. Hay purchased a drug store in Ridgway, and in July moved to that place.

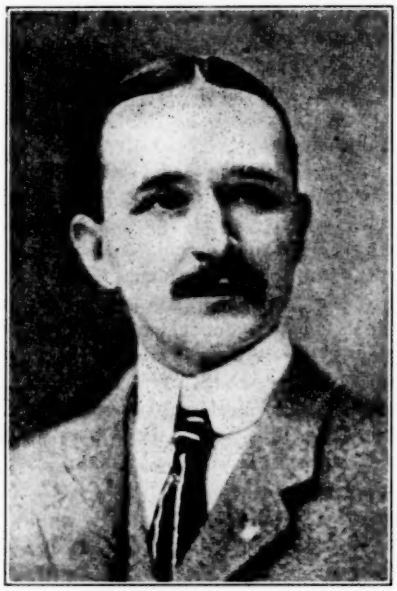
Mr. Hay was a master workman in pharmacy and for a number of years was active in the Pennsylvania Pharmaceutical Association. He became a member in 1896, in 1899 he was elected first vice-president, and in 1902 was made president.

Mr. Hay was a man of strong force of character and genial disposition.

He was a warm admirer of the American Pharmaceutical Association, believing that

"the good work that this organization has accomplished can scarcely be computed; sufficient to say that whatever advancement pharmaceutical science has made in this country has been largely due to its fostering care." He became a member in 1898.

Mr. Hay was especially earnest in his opinions upon the necessity of changing our



CHARLES L. HAY

patent and trade mark laws. In his address as president of the Pennsylvania Pharmaceutical Association, in 1903, he said that education is our remedy—"Educate our people as well as our legislators to a thorough comprehension of the nature of these laws. . . .

"Our country—big and generous in everything—permits its generosity to take strange moods. So lavish are we that we give away an empire worth a dozen king's ransoms to a transcontinental railway and then in the next spasm grant a foreigner a monopoly on a medicinal preparation which his own country—more watchful of the welfare of its invalid citizens—refuses to protect; and this freak of generosity of ours enables the foreigner to demand and receive four, yes, five and six, times what the identical product sells for in the land of its birth."

Thirteen years have flown by since Mr. Hay uttered his earnest protest and the laws of product-patents have not been changed; but they may yet be by reason of the exigencies caused by the European War.

Mr. Hay is survived by his wife and two sons, his mother, five brothers, and two sisters. J. W. E.

JOSEPH D. FRANZONI.

Joseph Dunbar Franzoni, seventy-five years old, a prominent pharmacist of the national capital, died at his late home, 608 Massachusetts Avenue, N. W., Washington, D. C., on April 22, 1916, of Bright's disease. He was a life-long resident of Washington and a prominent figure in local pharmaceutical circles. He was connected with the firm of Z. D. Gilman, 627 Pennsylvania Avenue, for fifty-three years, and was a member of the firm for half a century. He took an active interest in civic affairs, being a member of the Board of Trade and Chamber of Commerce.

He joined the American Pharmaceutical Association in 1900. He is survived by four sons, two daughters, and a brother, all of Washington, D. C. J. W. E.

SOCIETIES AND COLLEGES.

The American Pharmaceutical Association will meet in Atlantic City, September 5–9. The American Conference of Pharmaceutical Faculties and National Association of Boards of Pharmacy convene in Philadelphia, August 31 and September 1 and 2, participating in joint meeting with other bodies in Atlantic City during the week following. In last issue, underneath a cut showing a view in Atlantic City, the month given there was an error, and, while we presume this was recognized, we desire to emphasize the time and place so that the members will prepare for the annual event.

The Chairmen of the various sections have been busily engaged in laying out their work and soliciting papers for their programs. While, as a rule, by the time of the meeting, there are sufficient papers to occupy the time of the sessions, many are slow in responding, forgetful that this may mean loss of time and unnecessary expenditure for postage.

The Detroit meeting exemplified that it was possible to carry on association work systematically. Of necessity each member in attendance has many engagements, they would like to participate in the work, or listen to as many of the papers as possible. The success depends on coöperation in applying system and doing away with *unnecessary* remarks.

Discussions are very important. Everyone must make some sacrifice, and punctuality is essential. Associations should be conducted according to modern business methods, run by the clock, "filling the unforgiving minute with sixty seconds' worth of distance run."

Atlantic City is so generally well-known for its attractions and hotel facilities that little need be said in that respect. On page 557 of the May issue names and rates of hotels will be found. Further information can be obtained by addressing the Atlantic City Publicity Bureau.

THE NEW NATIONAL FORMULARY.

The Committee on Publication of the American Pharmaceutical Association makes the following announcement:

The National Formulary, Fourth Edition (N.F. IV), will be ready for distribution about July 1, 1916.

The prices of the book in the various bindings will be as follows: Muslin binding, plain, $2.50; buckram, plain, $2.75; buckram, interleaved, $4.00.

The purchase of the buckram binding is recommended, in preference to the muslin binding, as it is much more durable and suitable for a book of the size and weight and the constant use to which this book will be subjected; and the additional cost is but 25 cents per copy.

The book has been completely revised and enlarged. It contains formulas for 589 preparations in Part I, and in Part II definitions and tests for 188 ingredients used in the formulas, but not standardized in the U.S.P. IX. The titles of articles total 777.

The N.F. IV is a legal standard under the Federal Food and Drugs Act and various state food and drug acts and is indispensable to every practising physician and pharmacist.

The Midland Publishing Company, Columbus, Ohio, has been appointed general sales agent with the following sub-agents: The Baker-Taylor Company, New York City; The Chicago Medical Book Company, Chicago; L. S. Mathews Company, St. Louis, Mo.; The Pacific Drug Review, San Francisco and Portland.

Single copies will be forwarded postpaid on receipt of the price by any of the agents.

J. W. ENGLAND,
Chairman of Committee on Publications.
Philadelphia, Pa.

JUNE AND JULY ASSOCIATION MEETINGS.

Alabama Pharmaceutical Association, at Gadsden, June 21st. President, L. L. Scarborough, Anniston; secretary, W. E. Bingham, Tuscaloosa.

California Pharmaceutical Association, at Los Angeles, June 21–23. President, J. A. Sanford, Stockton; secretary, K. B. Bowerman, San Francisco.

Colorado Pharmaceutical Association, at Estes Park, June 20–23. President, H. B. SeCheverell, Denver; secretary, Charles J. Clayton, Denver.

Florida Pharmaceutical Association, at Tampa, June 21–22. President, M. M. Taylor, Tampa; secretary, J. H. Horton, Palatka.

Georgia Pharmaceutical Association, at Atlanta, June 6–7. President, S. E. Bayne, Macon; secretary, T. A. Cheatham, Macon.

Idaho Pharmaceutical Association, at Ketchum, June 19–21. President, W. F. Bee, Boise; secretary, D. S. Whitehead, Boise.

Illinois Pharmaceutical Association, at Springfield, June 6–8. President, Julius Riemenschneider, Chicago; secretary, W. B. Day, Chicago.

Indiana Pharmaceutical Association, at Indianapolis, June 20–22. President, Charles Genolin, Nashville; secretary, W. F. Werner, Indianapolis.

Iowa Pharmaceutical Association, at Iowa City, June 20–22. President, John Sutter, Burlington; secretary, Albert Falkenhainer, Algona.

Kentucky Pharmaceutical Association, at Olympia Springs, June 20–22. President, W. B. Tibbals, Somerset; secretary, J. W. Gayle, Frankfort.

Maine Pharmaceutical Association, at Augusta, June 28–30. President, D. T. Dougherty, Bath; secretary, M. L. Porter, Danforth.

Michigan Pharmaceutical Association, at Detroit, June 20–22. President, D. H. Jongejan, Grand Rapids; secretary, D. D. Allen, Fremont.

Mississippi Pharmaceutical Association, at Meridian, June 13–14. President, H. M. Faser, Oxford; secretary, Miss Flora Scarborough, Laurel.

Missouri Pharmaceutical Association, at Excelsior Springs, June 13–16. President, J. E. Koppenbrink, Higginsville; secretary, H. M. Whelpley, St. Louis.

Nebraska Pharmaceutical Association, at

Hastings, June 15–16. President, K. L. Kreisinger, Fremont; secretary, J. G. McBride, University Place.

New Hampshire Pharmaceutical Association, at Newcastle, June 27–28. President, B. T. Porter, Ashland; secretary, Eugene Sullivan, Concord.

New Jersey Pharmaceutical Association, at Long Branch, June 20–23. President, C. J. McCloskey, Jersey City; secretary, Frank C. Stutzlen, Elizabeth.

New York Pharmaceutical Association, at Richfield Springs, third week in June. President, A. S. Wardle, Hudson; secretary, E. S. Dawson, Syracuse.

North Carolina Pharmaceutical Association, at Wrightsville, June 20–22. President, E. L. Tarkenton, Wilson; secretary, J. G. Beard, Chapel Hill.

Pennsylvania Pharmaceutical Association, at Reading, June 20–22. President, T. Campbell, Philadelphia; secretary, D. J. Reese, Philadelphia.

Utah Pharmaceutical Association, at Logan, June 27–28. President, R. S. McAllister, Logu; secretary, C. VanDyke, Salt Lake City.

Vermont Pharmaceutical Association, at St. Albans, June 26–28. President, C. H. Skinner, Windsor; secretary, W. E. Terrill, Montpelier.

West Virginia Pharmaceutical Association, at Webster Springs, second week in June. President, B. E. Downs, Welch; secretary, C. H. Rogers, Morgantown.

Washington State Pharmaceutical Association, on board the Steamship Governor, during three-day cruise on Puget Sound, June 19–22. President, C. W. Johnson, Seattle; secretary, A. W. Linton, Seattle.

Flavoring Extract Manufacturers' Association, at Atlantic City, June 28–30.

American Institute of Chemical Engineers, eighth semi-annual meeting, Cleveland, Ohio, June 14–17. President, George D. Rosengarten, Philadelphia; secretary, John C. Olsen, Brooklyn, N. Y.

Montana Pharmaceutical Association, at Missoula, July 20–23. President, J. W. Corwin, Arch City; secretary, J. A. Riedel, Boulder.

Ohio Pharmaceutical Association, at Cedar Point, July 11–14. President, J. F. Gallaher, Dayton; secretary, T. D. Wetterstroem, Cincinnati.

Tennessee Pharmaceutical Association, at Chattanooga, July 11–13. President, T. A. Robinson, Memphis; secretary, T. J. Shannon, Sharon.

Virginia Pharmaceutical Association at Staunton, July 12–14. President, J. F. Bauer, Richmond; secretary, E. L. Brandis, Richmond. Through misinformation time and place were wrongly given in last month's issue. We thank secretary Brandis for the correction.

Wisconsin Pharmaceutical Association, at Wausau, July 18–21. President, B. J. Kremer, Fond du Lac; secretary, E. A. Raeuber, Milwaukee.

ARKANSAS ASSOCIATION OF PHARMACISTS.

Arkansas pharmacists convened in annual session at Little Rock, May 9. One of the interesting features of the program was a symposium on the various National Associations. Messrs. W. L. Dewoody, J. F. Dowdy and O. Halliburton were elected to Life Membership. The new officers are: President, W. R. Appleton, Warren; first vice-president, August Clarke, Nashville; second vice-president, W. C. Hogan, Atkins; secretary-treasurer, Miss Mary A. Fein, Little Rock.

Chairman of executive committee, Frank Schachleiter.

Nominations for State Board Membership, Roy Chamberlain, Malvern; J. E. Paris, Paragould; August Clarke, Nashville.

OKLAHOMA PHARMACEUTICAL ASSOCIATION.

The Oklahoma Pharmaceutical Association convened at Sulphur, May 16. Entertainment features were excluded from the first and second days' sessions and concentrated interest in the many valuable papers. Dean Charles Stocking, of the Oklahoma Pharmacy School, delivered an address. Oklahoma City was selected for the next meeting and the days fixed for the convention are February 13, 14 and 15. The new officers are: President, R. L. Sanford, Marshall; vice-president, Thos. Roach, Oklahoma City; secretary-treasurer, A. W. Woodmancy, Oklahoma City.

TEXAS PHARMACEUTICAL ASSOCIATION.

Secretary W. H. Cousins writes that the Fort Worth meeting of Texas Pharmaceuti-

cal Association was a good one. The business sessions were fairly well attended and the entertainment has never been surpassed. A feature of the meeting was an able address by Hugh Craig of Chicago, editor of the journal of the National Association of Retail Druggists. About sixty new members were added and eleven applications were received for the American Pharmaceutical Association.

The new officers are: Z. E. Marvin of Dallas, president; C. E. Craycroft of Sherman, first vice-president; Tom J. Snell of Cooper, second vice-president; Mrs. Emilie B. Dwyer of Houston, third vice-president; Frank Pierce of Ballinger, fourth vice-president; W. H. Cousins of Dallas, secretary-treasurer; J. W. Graham of Austin, home secretary; W. C. Burns, San Antonio, local secretary, and Steve Kelton of Fort Worth, historian.

Officers of the ladies' auxiliary are: Mrs. W. H. Wentland, Manor, president; Mrs. J. W. Cleveland, Houston, first vice-president; Mrs. George Reynolds, Dallas, second vice-president; Mrs. C. C. Martin, Fort Worth, secretary; Mrs. Walter Adams, Forney, treasurer.

San Antonio was selected as the next meeting place.

LOUISIANA PHARMACEUTICAL ASSOCIATION.

The thirty-fourth annual meeting of the Louisiana Pharmaceutical Association was held at Baton Rouge, May 9.

The most important action of the association was the appointment of a special committee to draft a bill to extend the authority of the board of pharmacy.

The following officers were elected to serve during the ensuing year:

President, Charles A. McDonald, of Port Allen; vice-presidents, E. H. Daste, of New Orleans, and J. R. Taylor, of New Iberia; treasurer, George S. Brown, of New Orleans; secretary, George W. McDuff, of New Orleans; corresponding secretary, J. E. Guess, of Kentwood.

MEMBERS OF DEUTSCHER APOTHEKER VEREIN NEW YORK WILL ATTEND ATLANTIC CITY MEETING.

Mr. Hugo Kantrowitz conveys the information that many members of the Deutscher Apotheker Verein will attend the Atlantic City meeting of the American Pharmaceutical Association, September 5–9. Aside from the general purpose of attending the meeting, a motive that prompted the arrangement was to pay respects to their fellow-member, Dr. William C. Alpers, President of the American Pharmaceutical Association.

TENTH ANNIVERSARY OF AMERICAN DRUGGISTS' FIRE INSURANCE COMPANY.

The American Druggists' Fire Insurance Company is so closely related that it may well be named one of the allied drug interests, being organized exclusively by members of one or the other, or all of the national associations. The occasion of its tenth birthday was celebrated by bringing together those who represent the company with the officials and the gathering had the complexion of a pharmaceutical meeting, nearly all being active in State and National Associations. Aside from the celebration, the convention was for instruction; these sessions were full of interest, every one in attendance contributing a paper. The entertainment features were left for the last day of the convention, terminating with a banquet, at which time Dr. W. C. Anderson presided as toastmaster and responses were made by President Alpers of the American Pharmaceutical Association, President Stout of the National Association of Retail Druggists and Messrs. T. H. Potts, Hugh Craig, Chas. H. Huhn, L. C. Heinritz, Professor J. U. Lloyd and E. G. Eberle.

During the evening Mr. F. H. Freericks was presented with a valuable watch and chain, and with it went the appreciation and best wishes of his associates, expressed in thoughtful and beautiful words by Dr. J. H. Beal.

ST. LOUIS COLLEGE OF PHARMACY.

Commencement exercises of the St. Louis College of Pharmacy were held at Sheldon Memorial Hall, May 24; the address for the faculty was made by Professor George Dock of Washington University Medical School. The degrees were conferred by President Thos. A. Buckland and the prizes and honors by Dr. W. D. Aufderheide and Prof. Leo Suppan. The recommendation for membership in the American Pharmaceutical Association was awarded to Henry George Becker of Pekin, Ill. Twenty-eight candidates received the degree of graduate in pharmacy and twelve the bachelor of pharmacy degree.

The annual banquet was held at Jefferson Hotel, May 23, Dr. H. M. Whelpley, presiding as toastmaster.

BAYLOR UNIVERSITY COLLEGE OF PHARMACY.

Commencement exercises of Baylor University College of Pharmacy were held May 31. The American Pharmaceutical Association Membership was awarded to Zeb. W. Rike, of Farmersville, Texas.

LOUISVILLE COLLEGE OF PHARMACY.

The Louisville College of Pharmacy conferred the degree of graduate in pharmacy on sixteen students at their forty-fifth annual commencement. Beginning with next session the college will add a three-year course for the degree of pharmaceutical chemist.

MASSACHUSETTS COLLEGE OF PHARMACY.

The commencement exercises of Massachusetts College of Pharmacy were held May 18, at Convention Hall, Boston. The honorary degree of Doctor of Pharmacy was conferred on Henry A. Estabrook of Fitchburg, Mass., in recognition of his distinguished standing as pharmacist. Dr. Estabrook also delivered the address to the graduates; President C. Herbert Packard conferred the degrees on thirty-eight candidates, seven of whom received the degree of pharmaceutical chemist, the others that of graduate in pharmacy. Five of the candidates were awarded membership in the American Pharmaceutical Association, as prizes for proficiency in various branches; they are: Emile J. Ouellet, of Adams, Mass., Annabel Carter, of Waltham, Mass., Percy M. McCormick, of New Castle, New Brunswick, Ralph C. Root, Brattleboro, Vt., and Frank G. Braconier, of Campello, Mass.

PHARMACY DEPARTMENT, MEDICO-CHIRURGICAL COLLEGE.

On the evening of May 3, the Alumni Association of the Pharmacy Department, Medico-Chi, tendered its annual reception to the Senior Pharmacy Class at the Hotel Adelphia, President Fischelis acting as toastmaster. Edward J. Cattell, Statistician of the City of Philadelphia, gave an eloquent address on "Getting the Most Out of Life," and no doubt his words will be long remembered by all who were fortunate enough to be in attendance. Among the other speakers were Eugene G. Eberle, editor of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION; Dean J. W. Sturmer; Dr. A. C. Morgan, of the Medical Alumni Association; Dr. James A. Brady, of the Dental Alumni Association; Dr. John R. Minehart, Dean of the Department of Pharmacy of Temple University and a graduate of the Department of Pharmacy of Medico-Chi; Dr. W. W. McNeary, President of the General Alumni Association; Prof. F. E. Stewart, and representatives of the Senior Class.

The commencement exercises of the Pharmacy Department were held at the Academy of Music, June 9, the doctorate oration being delivered by Hon. William W. Porter, formerly Justice of the Superior Court of Pennsylvania. A general alumni banquet and reception was held June 8th. Dr. H. V. Arny of the New York College of Pharmacy was a guest of honor and one of the speakers.

Membership prizes in the American Pharmaceutical Association were awarded to Albert L. Ikan, Charles A. Greenstone and A. M. Aliberti.

Announcement was made that the department of pharmacy would become the Department of Pharmacy of the University of Pennsylvania.

NEW YORK COLLEGE OF PHARMACY.

The eighty-sixth annual commencement exercises of the College of Pharmacy of the City of New York, Columbia University, were held in Carnegie Hall on the evening of May 11th.

The trustees of the New York College of Pharmacy contemplate a drug garden and have secured the use of a plot of ground in the New York Botanical Gardens and are now securing funds to prepare the ground for cultivation.

The members of the special committee in charge of collecting the fund needed to start operations in this garden are Irving McKesson, Dr. Henry Hurd Rusby, dean of the college, and Max J. Breitenbach. This committee has already obtained subscriptions for $4000, and hopes to gather $6000 more within the near future.

It is estimated that it will cost at least $3000 to put the loaned acre into shape for the successful cultivation of drug plants. The expense of operating the garden after it has been prepared is figured at $600 a year. The committee hopes eventually, however, to secure an endowment fund of about $20,000, which, at 6 percent interest, will furnish a

revenue of $1200 a year, and to use the greater part of, if not all of, this revenue in a gradual expansion of activities.

PHILADELPHIA COLLEGE OF PHARMACY.

Commencement exercises of the Philadelphia College of Pharmacy began Sunday, June 4, with baccalaureate services at the Church of St. Luke and the Epiphany; Monday the faculty banqueted the graduating class; Tuesday was Alumni Day. This is the fifty-second anniversary of the Alumni Association and the fiftieth year since Professor Joseph P. Remington, the dean, graduated from this school, which is sending out its ninety-fifth class of graduates. The annual meeting was held during the morning while the afternoon was given over to class-day exercises and the day concluded with a banquet at Hotel Adelphia, where assembled nearly 300 graduates of the institution.

The speakers on the program were Dr. Ross V. Patterson, dean of the Jefferson Medical College, President William H. Ibach, Jr., of the graduating class and President Warren H. Poley, of the Alumni Association; impromptu addresses and remarks were made by representatives of the classes of the years ending in "1" and "6," and others called upon. The oldest graduate in attendance was Joseph L. Lemberger of Lebanon, Pa., of '54, who spoke words of admonition and cheer. Prof. E. N. Howell of Chapel Hill, N. C., was present and spoke of his attachment for the school. Numerous letters and telegrams were read and the evening passed quickly and pleasantly.

The graduating exercises were held at the Academy of Music, June 7, the address being delivered by Rev. Dr. John G. Wilson. President Howard B. French presided and conferred the degrees on 154 graduates. Certificates of Proficiency in Chemistry were given to nine; Food and Drug Course, one; Bacteriology, twenty-one; Analysis of Agricultural Products, one; Pharmaceutical Chemists, eleven, and the remaining were given the degree of Doctor in Pharmacy.

Service to humanity as the graduates' mission in life was emphasized by the Rev. Dr. John G. Wilson in his address to the class after the degrees had been presented. He appealed to the graduates to be citizens first and business men afterward.

Of the eight young women graduates, one, Miss Florence McGarrity, is secretary of the class, and several were prize winners. The girls in the class were Miss Ada M. Bernstein, Miss Sadie Swyers, Miss Florence McGarrity, of Pennsylvania; Miss Louisa L. Escanaverino, Miss Marie D. Escanaverino, of Cuba; Miss Agatha Karnauskas, of New York; Miss Elizabeth M. Willard and Miss Maud Sollenberger, of New Jersey.

The American Pharmaceutical Association Membership prize was awarded to William Alexander Wallace.

JERSEY CITY COLLEGE OF PHARMACY.

The students of the Department of Pharmacy and the Department of Dentistry of the College of Jersey City held a reunion and a dinner at Carell's Café on Friday evening, June 2, 1916. The students have formed a Chemical Club in honor of Dr. Otto Raubenheimer, Professor of Pharmacy and Chemistry at the College. This club has the following objects: To increase the interest in chemistry, to help those students who are back in their work, to hold discussions, to provide special lectures, to visit chemical works, and to promote good fellowship.

The speakers of the evening were: Professors Raubenheimer, Kussy, Throne and Gutman, who are honorary members of the Chemical Club. The toastmaster of the evening was Harold V. Purdy of White Plains, N. Y. The Chairman of the Arrangement Committee, Harry H. Hermann, deserves credit for this very enjoyable affair. A unique feature was that each speaker had to present something pertaining to chemistry, thus making the affair a real "chemical dinner." Over 50 students were present and the banquet was a great success.

The officers of the Chemical Club are: President, Samuel Mintz; Vice-president, Leonard S. Morvay; Secretary, Joseph Bleich; Treasurer, Tillie Gardner; Laboratory Director, Samuel Brochin.

PHARMACY DEPARTMENT, TEMPLE UNIVERSITY.

The Commencement Exercises of the Pharmacy Department of Temple University were held at the American Academy of Music, June 10. Thirty-two candidates received the degree of Graduate in Pharmacy, three that of Pharmaceutical Chemist and six the degree of Doctor of Pharmacy. Ex-President of the United States, William Howard Taft, delivered the address, and his subject was largely concerned with the duties of citizenship.

THE PHARMACIST AND THE LAW.

FIRE INSURANCE RATING LAWS.

PHARMACISTS URGED TO WATCH INSURANCE RATING LEGISLATION—UNDESIRABLE BILLS STIFLE COMPETITION.

BY FRANK H. FREERICKS.

The suit of the American Druggists' Fire Insurance Company against the Commonwealth of Pennsylvania and its Insurance Commissioner forcibly brings to the public attention a legislative activity of rather recent origin. Curiously enough, this legislation is designed by its early supporters and advocates to stifle all competition among legitimate and substantial fire insurance companies, and yet it has received a limited measure of public support, doubtless due to the complexities of the fire insurance business and to the lack of its real understanding by the public, and even by many public officials. . . .

The fundamental error found in all fire insurance rating legislation is that those who would truly serve the public by advocating it do not understand that single insurance companies cannot afford the expense of making their own rates. As a consequence, every rating law now existing provides that insurance companies may make their own rates, when as a matter of fact such is a practical impossibility, and, while the understanding prevails that competitive conditions are preserved, quite the contrary is true, and all of the insurance companies are forced to adopt the rates of the Underwriter Boards and Rating Bureaus, which are controlled by the large board companies. It is only where the law provides, in addition, that insurance companies may file uniform reduction in bureau rates that competitive conditions are preserved, however, without any real influence to reduce rates of so-called board companies. The feature which would tend to preserve competitive conditions is the one to find within the last few years special attention, and in order to be sure that there can be no competition at all the Pennsylvania law and other similar laws provide that insurance companies must abide by the rules and regulations which the Underwriter Boards and Rating Bureaus may make. Of course, the first rule and regulation which such Underwriter Boards and Rating Bureaus have adopted is that no company having their service, or seeking to secure their service, may make any reductions in rates as fixed by them.

The Pennsylvania Insurance Rating Law has placed every property owner in that state at the mercy of the Underwriter Boards which there exist. Not only are all of the reliable capital stock companies forced under it to charge the rates as fixed by said Underwriter Boards, but in order to make sure that nothing shall hinder the organized insurance interests in that respect, the law actually in specific terms permits agreements among insurance companies, so that, while heretofore in case of wrongful combination and exorbitant rates they might have been charged with conspiracy, the law has taken away even this last protection of the public welfare. It is not possible to conceive of legislation apt to be of greater harm to the public interests, and yet it has been secured for the ostensible purpose of serving the public welfare. It is to be hoped that this sham will be torn from the legislation when it finds its hearing in the suit now pending, and then, no doubt, further efforts along that line will have been successfully checked. Meanwhile it will be quite important for the business interests of the country to watch the insurance rating legislation which may be proposed in their respective states. They may understand fully that such legislation, even of the best kind, will never result in reducing premium charges, but the greatest attention should be given to the feature which indirectly means to stifle all competition. Any fire insurance rating law which does not provide that Rating Bureaus or Underwriting Boards shall make no rules and regulations to prevent uniform reduction in rates by the separate companies having their service is inherently bad, and inevitably results in stifling all competition among reliable insurance companies.

COCA-COLA CASE REMANDED TO LOWER COURT FOR ACTION.

United States Supreme Court, by Justice Hughes, reversed the lower court decision as to misbranding and finds that the lower court erred in directing a decision instead of sending case to the jury.

The coca-cola case originated in Chattanooga, when the Government seized 40 barrels and 20 kegs of coca-cola on the ground that it was adulterated and misbranded. The

court directed that the case be again tried under an interpretation as to the eligibility of evidence in connection with what is termed adulterated food. The case originally alleged misbranding in that the seized shipment was found to contain caffeine, but the Supreme Court did not hear the case on its merits and simply reversed the decision of the lower court and remanded it for further consideration on the ground that the lower court erred in directing a verdict in favor of the company instead of letting the case go to the jury. The lower court held that the caffeine was not an "added ingredient," the case being brought under the Pure Food and Drugs Act.

The following are extracts from the decision:

We are not now dealing with the question whether the caffeine did, or might, render the article in question injurious; that is a separate inquiry. The fundamental contention of the claimant, as we have seen, is that a constituent of a food product having a distinctive name cannot be an "added" ingredient. In such case, the standard is said to be the food product itself which the name designates. It must be, it is urged, this "finished product" that is "adulterated." In that view, there would seem to be no escape from the conclusion that however poisonous or deleterious the introduced ingredient might be, and however injurious its effect, if it be made a constituent of a product having its own distinctive name it is not within the provision. If this were so, the statute would be reduced to an absurdity. Manufacturers would be free, for example, to put arsenic or strychnine or other poisonous or deleterious ingredients with an unquestioned injurious effect into compound articles of food, provided the compound were made according to formula and sold under some fanciful name which would be distinctive. . . .

In the present case we are of opinion that it could not be said as matter of law that the name was not primarily descriptive of a compound with coca and cola ingredients, as charged. Nor is there basis for the conclusion that the designation had attained a secondary meaning as the name of a compound from which either coca or cola ingredients were known to be absent; the claimant has always insisted, and now insists, that its product contains both. But if the name was found to be descriptive, as charged, there was clearly a conflict of evidence with respect to the presence of any coca ingredient. We conclude that the court erred in directing a verdict on the second count.

The judgment is reversed and the cause is remanded for further proceedings in conformity with this opinion.

UNIFORM PRICE MEASURES.

Hearings have been given by Committee on Interstate Commerce of the House to representatives of the drug trade on the Stephens-Ashurst resale price maintenance bill. There still is much uncertainty regarding final result, notwithstanding that the United States Chamber of Commerce and the commercial bodies affiliated with that organization have voted with great unanimity in favor of legislation based upon the idea of the maintenance of resale prices.

Senator W. E. Borah, of Idaho, has added a provision to the Stephens-Ashurst measure providing that the Federal Trade Commission of its own initiative may, or upon a petition in writing by a citizen filed with such commission shall, fix and establish a fair and reasonable price at which any article coming under the terms of this act shall be sold, and shall for that purpose have access to all records, books, papers, accounts, secret processes and formulas of the proprietor, manufacturer or producer of such article which said commission shall deem necessary in order to enable it to fix and establish such price; that a price once fixed and established shall not be raised or increased without authority of the commission so to do; that any one increasing the price over that fixed by the commission shall be punished by a fine of not more than $1000 or imprisonment not less than six months, or by both such fine and imprisonment.

APPLICATION FOR REGISTRATION UNDER HARRISON LAW.

Every person, firm or corporation making application for registration must, at the time of applying for such registration, prepare in duplicate an inventory of all narcotic drugs and preparations (other than those exempted under the provisions of section 6 of the act, as defined in T. D. 2309) on hand at the date of application for registration. Where, however, a registered person, at some fixed date annually, takes a stock inventory, either at the close of the business fiscal year or of the calendar year, such inventory in dupli-

cate, showing the quantity and names of the narcotic drugs and preparations on hand on the date next preceding the date of application for registration, may be filed in lieu of the annual inventory required at time of registration. The original inventory must be kept on file with previous inventories by the maker and the duplicate forwarded to the collector of internal revenue. No special form of inventory is required, but it must clearly set forth the name and quantity of each kind of narcotic drug, preparation or remedy, and be verified by oath or affirmation executed in conformity with law. Collectors will refuse a registration number and special tax stamp to an applicant who fails to furnish annually, at or before the date of registration, a duplicate of such inventory. Narcotic drugs and preparations must at all times be segregated from the general stock of drugs and medicines, and should be kept under lock and key to prevent theft. Where losses by theft or in transit are reported, a sworn statement of the facts, a list of the lost narcotic drugs, and preparations, and, in the case of theft, evidence that the local authorities were notified, must be filed immediately with the collector.

WAR DEPARTMENT.

List of changes of station covering period ending May 31, 1916, in the cases of Sergeants First Class and Sergeants, Hospital Corps, U. S. A.

SERGEANTS FIRST CLASS.

Charles N. Shaw, from Ft. Porter, to Ft. Logan.

Hugo E. Lacher, from Ft. H. G. Wright, to Jackson Barracks.

Albert O. Miller, from Ft. Williams, to the Hawaiian Department, on the June transport.

Henry Ash, from Ft. Adams, to the Hawaiian Department, on the June transport.

Benjamin F. Tyler, from Ft. Bayard, to Ft. Sill.

Will G. Butler, from Ft. Mott, to the Southern Department, for assignment to station.

Arthur E. Brown, from Ft. Caswell, to the Southern Department, for assignment to station.

Michael J. Hogan, from Madison Barracks, to the Southern Department, for assignment.

Samuel H. Leopold, from Ft. Rosecrans, to the Southern Department, for assignment.

Edgar T. Hitch, from the Philippines Department, to Ft. Bayard.

Walter L. Phares, from the Philippines Department, to Ft. Bayard.

Joseph B. Ehrenwerth, from the Philippines Department, to Ft. Barry.

Francis Moore, from Ft. George Wright, to the Southern Department, for assignment.

George J. Shull, from Ft. Thomas, to the Letterman General Hospital.

SERGEANTS.

Joseph P. Mills, from Ft. Williams, to the Attd. Surgeons' Office, Washington, D. C.

Arthur A. White, from Ft. Ontario, to Ft. Porter.

Edgar H. Booher, from Ft. Crockett, to the Southern Department, for assignment.

Emil Ellingsen, from Ft. Myer, Va., to the Southern Department, for assignment.

Clarence K. Aikin, from Ft. Barrancas, to the Southern Department, for assignment.

Wellie L. Turner, from Ft. Moultrie, to the Southern Department, for assignment.

Knut G. Tallqvist, from Ft. Myer, to the Southern Department, for assignment.

Arthur F. Bade, from Ft. H. G. Wright, to the Southern Department, for assignment.

Adolph Gerstenzang, from Ft. Hancock, to the Southern Department, for assignment.

William J. Maney, from Ft. Totten, to the Southern Department, for assignment.

Horace J. Caterer, from Ft. Jay, to the Southern Department, for assignment.

Robert W. Leddy, from Ft. Ontario, to the Southern Department, for assignment.

Joseph M. Bistowish, from Madison Barracks, to the Southern Department, for assignment.

Richard J. Howland, from Ft. Strong, to the Southern Department, for assignment.

Harry C. Bauder, from Ft. Monroe, to the Southern Department, for assignment.

James J. Johnson, from Ft. Terry, to the Southern Department, for assignment.

Charles W. Hurley, from Ft. Hamilton, to the Southern Department, for assignment.

Edward H. Krog, from Plattsburg Barracks, to the Southern Department, for assignment.

Omer A. Couture, from Plattsburg Bar-

racks, to the Southern Department, for assignment.

Wm. A. Kesselring, from Plattsburg Barracks, to the Southern Department, for assignment.

Walter J. Webb, from Plattsburg Barracks, to the Southern Department, for assignment.

Thomas Salmon, from Vancouver Barracks, to the Southern Department, for assignment.

Arnold Koehler, from Ft. McKinley, to the Southern Department, for assignment.

Robert P. Evans, from Ft. Lawton, to the Southern Department, for assignment.

Thomas M. England, from Ft. Geo. Wright, to the Southern Department, for assignment.

Elmer M. Peddrick, from Madison Barracks, to Ft. Adams.

George A. Pippy, from "The U. S. Mine Planter *General Royal T. Frank*," to Ft. Thomas.

John W. Keenan, from Ft. Ontario, to Ft. Adams.

UNITED STATES PUBLIC HEALTH SERVICE.

List of changes of duties and stations of commissioned and other officers of the United States Public Health Service, for the seven days ended May 31, 1916:

Professor C. W. Stiles, detailed to deliver an address on Public Health at the meeting of the Social Service League, Montgomery County, at Takoma Park, Md., June 9, 1916. May 27, 1916.

Pharmacist E. B. Scott, granted one day's leave of absence, May 22, 1916. May 22, 1916.

Pharmacist C. H. Bierman, re-assigned to duty at the Marine Hospital, Portland, Me., effective May 17, 1916. May 29, 1916.

RUPERT BLUE, *Surgeon-General.*

CHANGES OF ADDRESS.

All changes of address of members should be sent to the General Secretary promptly. The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

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GROVES, H. C.,
From 419 W. 115th St.
To Addisleigh, St. Albans, L. I.

NIECE, F. E.,
From Lynn Ave., Queens, N. Y.
To Lot W, 66 New York, N. Y.

LOW, (MRS.) HARRY,
From Apt. 402, 1625 Polk St., San Francisco, Cal.
To Apt. 1, 1249 Broderick St., San Francisco, Cal.

SOUTHARD, F. A. (home address),
From 1065 Delta Ave., Cincinnati, Ohio.
To 5619 Bramble Ave., Cincinnati, Ohio.

NORNER, P. M. P.,
From 6809 York Road, Philadelphia, Pa.
To 6 S. Frederick St., Pelwein, Ia.

CLOUGHLY, O. J.,
From 1414 Blackstone St., St. Louis, Mo.
To 410 S. 4th St., St. Louis, Mo.

RABINOWITZ, Wm. J.,
From 333 State St., Brooklyn, N. Y.
To 1043 Tinton Ave., Brooklyn, N. Y.

TANSEY, O. H.,
From 1106 Greene Ave., Westmount, Prov. of Quebec, Can.
To 276 Clifton Ave., Montreal, Can.

ACHESON, WM. R.,
From 80 River St., Cambridge, Mass.
To 8 Park Ave., Cambridge, Mass.

SCHULZE, LOUIS,
From Patterson Park and Eastern Aves., Baltimore, Md.
To 2245 Eastern Ave., Baltimore, Md.

SCHULZ, EMIEL,
From Harlingen, Texas.
To Regimental Hospital, 6th Cavalry, Columbus, N. M.

COLLIER, WM. K.,
From 7 Argyle Ave., St. Paul, Minn.
To 683 St. Peter St., St. Paul, Minn.

WURDACK, JOHN H.,
From 51 Grape St., Knoxville, Pittsburgh, Pa.
To 15 Grape St., Mount Olive P. O., Pittsburgh, Pa.

HOVER, WM. T.,
From 426 Gilpin St., Denver, Colo.
To 1439 Franklin St., Denver, Colo.

FERNANDEZ, ANTONIO CAPAROY,
From P. O. Box 50, Havana, Cuba.
To Ganao, Cienfuegos, Cuba.

HAGEMAN, THEO. CHAS.,
From 1599 Chouteau Ave., St. Louis, Mo.
To HAGENOW, THEO. CHAS., 1701 S. Grand Ave., St. Louis, Mo.

FARWELL, OLIVER ATKINS,
From 449 McClellen Ave., Detroit, Mich.
To 419 Field Ave., Station C., Detroit, Mich.

BUSS, OLIVER C.,
From 6104 Kenwood Ave., Chicago, Ill.
To 6751 Blackstone Ave., Chicago, Ill.

BERNSTEIN, J.,
From 22 Gorham St., Rochester, N. Y.
To 45 Peckham St., Buffalo, N. Y.

GOHEEN, IRA LESS,
From 1014 Mississippi St., Lawrence, Kans.
To Alta Vista, Kans.

STEVENSON, A. E.,
From 1625 Transportation Bldg., Chicago, Ill.
To 204 Old Custom House, St. Louis, Mo.

STRAUCH, HENRY J.,
From 1011 Franklin St., Pittsburgh, Pa.
To 272 46th St., Pittsburgh, Pa.

SHEEHY, MAURICE WM.,
From National Military Hospital, Dayton, Ohio.
To 413 Hopkins St., Cincinnati, Ohio.

O'BRIEN, R. K.,
From 222 N. Craig St., Pittsburgh, Pa.
To Blenheim Apts., Friendship and Gross Sts., Pittsburgh, Pa.

MUHLHAUSE, O. W.,
From 1520 Latrobe Park Terrace.
To 1517 E. Fort Ave., Baltimore, Md.

HANCE, A. M.,
From 623 Callowhill St., Philadelphia, Pa.
To 201 Walnut Place, Philadelphia, Pa.

MITSCHELE, S. H.,
From 86 Hudson St., Hoboken, N. J.
To 115 Palisade Ave., Jersey City, N. J.

EISELE, GEORGE,
From 1458 E. 16th St., Cleveland, Ohio.
To 29 Van Buren St., Cleveland, Ohio.

ROESENER, W. C.,
From 204 W. Randolph St., Chicago, Ill.
To 161 N. Franklin St., Chicago, Ill.

TAYLOR, F. O.,
From 53 W. Alexandine, Detroit, Mich.
To 54 Philadelphia, E., Detroit, Mich.

NENINGER, F. N.,
From 348 State St., Brooklyn, N. Y.
To 435 Pacific St., Brooklyn, N. Y.

CLARK, A. H.,
From 74 E. 12th St., Chicago, Ill.
To 701 S. Wood St., Chicago, Ill.

WETTERSTROEM, THEO. D.,
From 3935 Spring Grove Ave., Cincinnati, Ohio.
To 118 E. 6th Ave., Cincinnati, Ohio.

WICKHAM, W. H.,
From 91 Fulton St., New York, N. Y.
To 10 West 43rd St., New York, N. Y.

EVANS, M. C.,
From 189 Boulevard E., Detroit, Mich.
To 34 Davenport, Detroit, Mich.

BRADT, F. T.,
From 399 Vinewood Ave., Detroit, Mich.
To 302 Maidstone Ave., Detroit, Mich.

BUEHLER, CARL T.,
From 4673 Evans Ave., St. Louis, Mo.
To Cole Camp, Mo.

GILBERT, C. THURSTON,
From 5315 Atlantic Ave., Atlantic City, N. J.
To Cor. Conn. Ave. and Boardwalk, Atlantic City, N. J.

UNIVERSITY OF ILLINOIS,
From 74 East 12th St., Chicago, Ill.
To 701 S. Wood St., Chicago, Ill.

DAY, WM. B.,
From 74 East 12th St., Chicago, Ill.
To 701 S. Wood St., Chicago, Ill.

GATHERCOAL, E. N.,
From 74 East 12th St., Chicago, Ill.
To 701 S. Wood St., Chicago, Ill.

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